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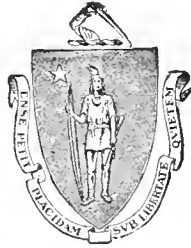


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OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

W. Robinson, F.L.S., Author of "Alpine Flowers," etc.

"You see, sweet maid, we marry
A gentle scion to the wildest stock;
And make conceive a bark of baser kind

By bud of nobler race: This is an art
Which does mend nature; change it rather; but
The art itself is nature."—*Shakespeare.*

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THE ELEVENTH VOLUME OF "THE GARDEN"

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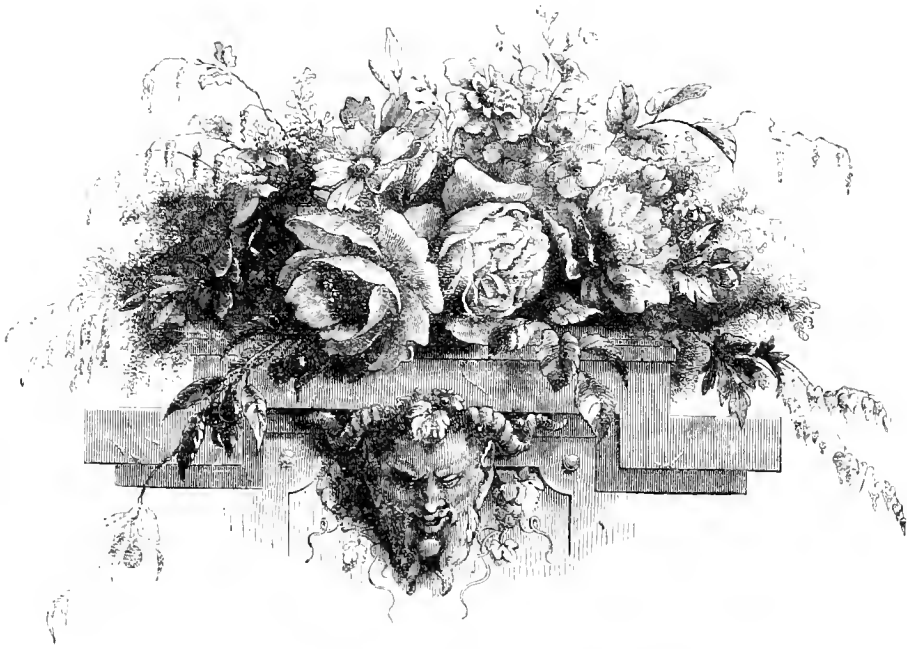
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THE GARDEN.

VOL. XI.

FLOWER FORCING AT BEXLEY HEATH.

LET the season of the year be what it may, our florists' shops teem with flowers of the choicest descriptions. Even during the worst weather, when scarcely a flower of any note can be found in ordinary gardens, we here find them exposed for sale in great quantities, and people who are unacquainted with our large suburban plant-growing establishments, may well be astonished that such plentiful supplies can be so regularly produced and disposed of. A visit to any of our market-supplying nurseries—Ladds', for instance, at Bexley Heath—however, clears up the mystery. In Mr. Ladds' place there is, perhaps, more glass than in any other establishment in which plants and flowers are grown wholly for market, and, considering the bleakness of the situation in which it is placed, the wonder is how early flowers can be grown to such perfection and in such large quantities as we here find them. At this, as at every other place of the kind, certain races of plants are made a speciality. The principal kinds grown here are Roses, Zonal Pelargoniums, and Gardenias, and these chiefly for supplying flowers in a cut state. To Tea Roses three span-roofed houses, each 300 ft. long and 30 ft. wide, are devoted. The plants, which are grown in pots are trained in the form of pyramids by placing a strong stake in the centre of each pot, to which the main stem is fastened. The varieties grown consist of Niphotos (white) and Isabella Sprunt (yellow), the aim being to grow only such sorts as will produce a profusion of finely-shaped buds for several months in succession, and these two kinds are found to do that better than any others. In August the plants are brought from outdoors and placed in the houses, where their shoots receive a little regulating and tying, and where they are kept in a cool, airy atmosphere until they show flower, when a little heat is applied in order to bring them forward. They are then subjected to a brisk heat and to abundance of moisture both as regards tops and roots, and from the middle of September until the end of May they yield a supply of bloom varying from 70 to 200 dozen per day. Hybrid Perpetuals are not grown on such an extensive scale as Teas; nevertheless, one house, of the dimensions just mentioned, is entirely devoted to them in winter and spring. The plants, which are standards, are planted out in a prepared bed, which runs down the middle of the house, the tallest being in the centre. These

usually bloom from February to April, after which Roses do not pay to have a house wholly devoted to them. They are therefore taken carefully up and planted out-of-doors in good ground until they are again required for forcing. Sometimes they suffer by being thus suddenly turned out of a warm house into the open air even in April, but having the whole of the summer to recruit themselves, they invariably give satisfaction. These are, as a matter of course, pruned in the autumn in the ordinary way, and are placed in their winter quarters as soon as convenient, care being taken not to excite growth until the flower-buds are formed. It is worthy of remark that not a trace of mildew, green fly, or other pests with which Roses are troubled is here to be found; on the contrary, the foliage is fresh looking, clean, and healthy, a result brought about by timely attention to fumigating, sulphuring, watering, and syringing several times a day. Mr. Ladds indeed, believing that prevention is better than cure, sulphurs the hot-water pipes in his Rose houses occasionally, whether there are signs of mildew or not. The largest of the buds are gathered every evening, and a piece of matting is tied round each of them in order to prevent the petals from falling before they reach their destination. They are then packed in boxes and sent to market early next morning. Among Hybrid Perpetuals Gen. Jacqueminot and Victor Verdier are the kinds found to answer best. The houses from which the Roses have been removed are filled during the summer months with bedding plants, such as Pelargoniums, Calceolarias, and Fuchsias, all of which are grown by tens of thousands and sold to the trade. One house of Tea Roses is, however, retained for supplying bloom in summer.

GARDENIAS.—Like Roses, these are grown here on an extensive scale, a house 200 ft. long and 30 ft. wide being entirely devoted to their culture. They are permanently planted out on mounds a foot or so higher than the floor of the house, with the view of preventing the plants from becoming sodden at the roots through the continual heavy syringings to which the foliage is necessarily subjected in order to keep it free from insects and in a healthy state. Some of the plants are 6 ft. to 7 ft. in height and nearly as much in width, and they are just starting into growth and showing their flower-buds. Previously to commencing to force, the plants receive a thorough dusting with a mixture of soot and guano, in order to clear

them of mealy bug, a pest to which they are subject. In that state they are allowed to remain for some days, when the mixture is washed off the foliage by means of a powerful syringe. This treatment, Mr. Ladds asserts, eradicates all insects, and, owing to forcible and frequent syringings, they never again gain a footing until after the blooms have begun to open, when syringings must necessarily be discontinued; if they then show themselves, they must be afterwards cleared off when the plants go out of bloom. The guano and soot when washed off stimulate the roots and serve to induce a free and healthy growth; and, although sometimes the foliage is slightly burnt by the mixture, yet this does not apparently injure the constitution of the plants, for they look wonderfully healthy and yearly yield hundreds of thousands of large, pure white, deliciously-scented blossoms.

ZONAL PELARGONIUMS as grown here serve two purposes; they supply cut blooms during winter and furnish compact, well-flowered plants with which to decorate the window sills and balconies of the London streets during summer. Vesuvius and Master Christine are the only kinds grown, with the exception of a few white-flowered sorts upon which no great value is set. Three span-roofed houses, 200 ft. long, furnished with 8 ft. beds on each side of the centre path, are devoted to Vesuvius; and Master Christine occupies a house of similar dimensions. These, notwithstanding the large quantities of blooms that are daily gathered from them, are still dense masses of scarlet and pink. Cuttings of both these varieties are struck in June, potted into 5-in. pots when well rooted, and freely exposed to the sun until the end of September, when they are placed in the houses in which they are to flower, each plant being set on an inverted flower-pot sufficiently distant from its neighbour to allow the air to circulate freely amongst them, thereby preventing the foliage and flowers from damping off in wet weather. The plants are potted in good loam, all kinds of manure or leaf-mould being avoided, as these only promote rank growth at the expense of bloom. The great point is to get the wood hard and well ripened early in autumn, and in order to accomplish this, and keep the plants dwarf and compact, no more water is given than is absolutely necessary to keep them in a healthy condition. When placed in the houses, they are kept very dry at the roots, and a dry atmosphere is also maintained. Any plants that show a want of vigour, or bloom sparingly, are watered with liquid guano, which soon improves their condition. The flowers are picked regularly every evening and by the same person, who takes great care never to pluck a truss one day that would last in good condition until the next. As they are gathered they are placed in wooden trays carried by boys on their heads, and when full are taken into the packing-house to be gummed; this process is also performed by boys, who, with a finely-pointed stick, drop the smallest possible quantity of prepared liquid gum into the eye of each flower; this keeps the petals stiff, and prevents the flowers from falling to pieces. When gummed, they are tied in bunches and packed for market. When they cease to realize good prices, the plants are cut back and prepared for their summer duties. Camellias, Spireas, Lilies of the Valley, and many other plants are also grown extensively in this establishment. To the former several houses are devoted; *Jasminum grandiflorum* is also well grown here, as indeed are many other kinds of plants, but Roses, Gardenias, and Pelargoniums form the bulk of the stock. S.

FINELY BLOOMED PLANTS OF *HIPPASTERIA AULICUM*.—Specimens of this old-fashioned Amaryllid are now blooming profusely in Messrs. Veitch's nursery at Chelsea. Amaryllids when in flower are at all times showy, but when grown, as they may now be seen in the nursery in question with five or six large bulbs in a pot, each bulb being furnished with two or three strong flower-spikes 3 ft. in height, and bearing several fully expanded and gorgeously coloured blooms, they are especially striking.—S.

GARDENERS' BENEVOLENT INSTITUTION.—At the annual general meeting of this charity, which is to take place on the 18th inst., three pensioners are to be elected, and it is hoped that all who have the opportunity will vote for Mrs. Ayres (recommended by Mr. Newton, Mr. Wills, and others) in order that she may be placed on the pension list. She is the widow of the late Mr. W. P. Ayres, so long and so well known to all connected with horticulture.

NOTES OF THE WEEK.

HONESTY-PODS AS WINTER ORNAMENTS.—The pods of the Common Honesty (*Lunaria biennis*) are justly esteemed on account of their value for vases, &c. Their satiny hue by artificial light is charming, especially when seen before mirrors. One of the prettiest combinations is that of Feather Grass and Honesty. Only the inner division of the pod should be left, the outer ones, which are generally weather-worn and soiled, are easily rubbed off between the finger and thumb. Where the plant grows freely fine panicles of pods are formed, one of which, well preserved, suffices for a large vase. Small side bits are very pretty in little vases with or without the more delicate Grasses.

NOTES FOR THE "GARDEN."—The editor asks the aid of contributors, correspondents, and readers to contribute to the notes, questions, and paragraphs in THE GARDEN. From the first Number published it has always been part of the plan of THE GARDEN to make these a special feature, and as they have been found very useful to its readers, it is desired to make them as interesting as possible. This, however, is part of the work which can only be efficiently done by our readers and correspondents, for whose aid we shall be grateful.

PLANTS IN FLOWER IN DORSETSHIRE.—The weather here is unusually mild although extremely wet. Violets of all kinds are flowering in great abundance. I have been gathering the Neapolitan kind from the open borders all the winter, and have to-day (Jan. 1), gathered a good supply of them. The Glastonbury Thorn is also flowering freely; a large tree of it here has been opening its blossoms for the last fortnight. *Chimonanthus fragrans* has been in flower for some time, and is now in full bloom.—D. UPHILL, Moreton, Dorchester.

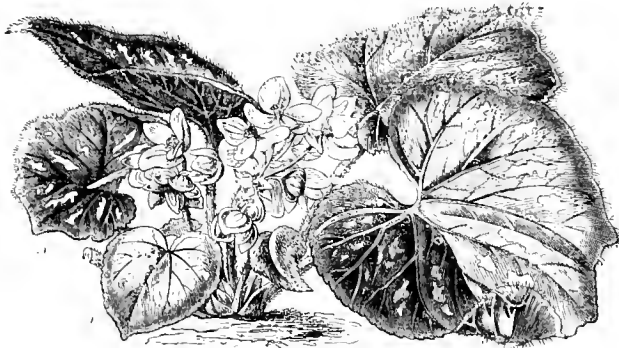
WINTER CROCUSES.—Your correspondent "B." in an article on winter flowers out-of-doors, in your impression for Dec. 9, mentions having seen *Crocus albiflorus* and *C. Fleischeri* in bloom. There must be some mistake here. Mr. Maw informs me that *C. albiflorus* does not appear above ground till March in its native habitat, the Carso of Trieste. The bulbs which Mr. Maw kindly gave me are now only just showing their green tips above ground in a pot which has been in the greenhouse for the last three months. *Crocus Fleischeri* does not bloom till the end of February or the beginning of March in this country, though its leaves have been for some time above ground. The Crocuses which your correspondent saw in bloom were, I have no doubt, varieties of *C. levigatus*—the description answering exactly to specimens which were in bloom here at the same time. The white anthers at once point to this species. It comes very near *C. Boryi*, which in its typical form is pure white with orange throat. The Crocus which best deserves the name of winter Crocus is, I think, *C. Imperati*. I have a small round bed of it now (January 1) in full bloom. If we could only get a still bright morning it would be one mass of delicate mauve stars. Through the kindness of a friend who resides near Naples I have received a few bulbs of the white variety of this beautiful Crocus. They are now showing above ground, but will not bloom till 1878. There is also a pure white variety of the handsome Crocus byzantinus. It is figured by Reichenbach in his "Icones," but does not yet appear to be in cultivation.—H. HARPUR CREWE, Drayton-Beauchamp Rectory, Tring.

OUTDOOR FLOWERS AT WORTHING.—The season here has continued unusually mild up to the present time, and the garden is still alive with flowers, of which the following is a list:—*Alyssum montanum* and *maritimum*, *Armeria fasciculata*, *Aubrietia purpurea*, *Anemone coronaria* and *vitifolia*, various kinds of Daisies, *Chimonanthus fragrans*, six large flowered Chrysanthemums, *Cardamine amara*, *Coronilla Emerus*, *Cistus corberiensis*, Marigolds, Wallflowers, *Escallonia nra* and *macrantha*, Strawberries, Christmas Roses, Candytufts, *Iris germanica* (just opening) and *stylosa*, *Kuiphofia Burchelli* and *Rouperi*, *Lychnis flos cuculi*, *Lamium maculatum*, *Lonicera flexuosa*, *Malcomia maritima*, *Mesembryanthemum*, *Mathiola incana* (single red and white, double red), *Pyrethrum Parthenium* fl. pl., Polyanthuses, common Primroses, *Potentilla alba*, *Ranunculus*, Roses—Hybrid Perpetuals (3 vars.), Tea-scented (2 vars.) Common China, *involucrata*, *Maria Leonida*, *monstrosa*, and Queen, *Sonchus oleraceus*, *Senecio vngaris*, *Sisyrinchium iridifolium*, *Laurustinus*, *Viola lutea*, and Pansy (five vars.). The shrubby Veronicas, too, are just now in excellent condition. Perfect flowers of all the plants just mentioned were observed in the open gardens on Christmas Day. Although not in blossom, scarlet and variegated Pelargoniums, *Calceolarias*, *Mignouette*, and other bedding plants are healthy, and in fair foliage.—W. W. SAUNDERS, Raystead, Worthing.

SREET TREES IN NEWINGTON CAUSEWAY.—On the motion of Mr. E. H. Bayley, the St. George's (Southwark) Vestry have determined to plant trees in Newington Causeway.

BEGONIAS FOR WALLS AND ROCKS.

THE back walls of shaded plant houses, which are generally unsuited for light-loving flowering plants, cannot be better utilized than by covering them with Ferns, Selaginellas, fine-foliaged Begonias (similar to that here represented), and graceful trailing plants of elegant habit. In many cases this has been already done with excellent effect, but perhaps never better than in the Ferneries at Manley Hall some years ago, where scarcely a bare inch of wall was anywhere visible, so dense and beautiful was the carpet of verdure which covered them. There are several ways in which these wall gardens may be formed, but the best which I have yet seen adopted is to cover the face of the wall with a coat of Peat and living Sphagnum Moss, 2 in. or 3 in. thick, these materials being held in position by means of zinc hexagon netting fastened firmly to the masonry. Under such circumstances scandent Ferns, Begonias of different sorts, Pothos argyrea, Tradescantia, Panicum variegatum, and trailing Aroids may be planted for immediate effect, and spores of quick-growing Ferns may be shaken over the moist surface as a preparation for future display. Frequent syringing is requisite, especially in dry, hot weather, until the plants have become established. In warm, shady plant-houses or conservatories these walls of



verdure are not only beautiful additions to the other arrangements, but they also serve a useful purpose in preserving the atmosphere in that humid and genial condition which is so essential to the welfare of choice decorative plants. B.

CLEMATIS SCREENS.

ALTHOUGH it is the fashion to erect screens of various kinds in the garden, it is not at all times that the screen proves more ornamental than the object sought to be hidden. A raised Fernery or rockwork may make an effectual screen, and yet be most hideous on account of its own deformity. A screen of evergreens is at once effective and pleasing, but it is not at all times possible to place such a screen in the narrow space at disposal. Probably no more thorough screen can be had than is produced by a close leafy growth of Ivy, but that is so wanting in parti-coloured hues, that its very sameness may at times become objectionable, whilst other creeping plants have little chance of existence if planted with Ivy, as the latter is often too robust and exhausting; thus, screens of vigorous climbers such as the Clematis, if not so effective for their special purpose in the winter, are at least very beautiful in the summer months, and can hardly be excelled in variety and interest. A further advantage may be found in the cheapness of a Clematis screen, as a few stout supports fixed securely at short intervals in the ground and covered with wire of a large mesh or in lengths placed at close intervals up the supports, will be found to be all that is required in its construction. Such wire can be purchased at a moderate price, and be fixed by any ordinary labourer, either by means of small iron staples, or by winding round the supports. I have just erected one about 6 ft. in height, and as the end posts are very firmly fixed in the ground, there is no difficulty in straining the wire to the requisite tension. The advantage of such

a screen for the development of the superb flowering qualities of the Clematis can well be understood to be greatly preferable to the practice of growing it upon poles; the plant in this latter case is far too cramped, and its flowers are too crowded to admit of their beauties being seen to the fullest extent. When trained to such a screen, not only is each flower visible, but if several varieties be grown upon it, the beauty of the floral development is much enhanced by the mixture of light and dark colours, and the many varied tints found in this useful hardy plant. If the screen be desired in the winter months, the previous season's growth may remain until the spring, but ordinarily it would be desirable to prune back not later than the end of the year, so that the strongest buds at the base of the plant might be induced to start into growth in the succeeding year. The Clematis is a gross feeder, and will well repay good cultivation and the application in the winter of rich top-dressings of rotten manure; under such conditions of culture the rapidity of growth in the spring is truly marvellous. A. D.

Cordylone vivipara as a Basket Plant.—It is to be regretted that this plant is not better known and more generally cultivated than it is, for few subjects are better adapted for conservatory decoration than this Cordylone when grown in hanging baskets. At the end of September last I filled two such baskets, putting half a dozen medium-sized plants in each. For about three weeks after being planted they were allowed to stand in a cold frame, and were then removed to a warm greenhouse, suspending them from the roof. They were here but a short time, when their flowering shoots began to show themselves, and a week ago they were removed to the conservatory, being then in full beauty, their long flexible shoots hanging gracefully downwards, and literally studded with pretty, white, star-shaped blossoms. As this Cordylone is perfectly hardy, I intend to plant some of it out-of-doors in the coming spring, and allow it to remain permanently. Of course, in planting its habit must be considered, and a position assigned to it where its pendent shoots will be seen to the best advantage.—R., *Enniskerry*.

Cypripedium barbatum majus.—This is an interesting plant when well grown, and in my opinion deserves more attention than is generally bestowed upon it. All large establishments, as a rule, possess a few plants of it, sometimes thriving remarkably well, and at other times very indifferently. Every one who has a vinery or greenhouse would do well to give it a trial, its cultivation being by no means difficult. It will succeed admirably in a compost of good maiden loam and peat, with plenty of silver sand and thorough drainage, and will produce early in winter a quantity of blossoms which will keep in good condition in a cool place for eight or ten weeks. I have some plants of it in flower here at present that have been in bloom since the first week in October, and they appear fresh now. They look remarkably well when associated with other flowering plants, such as Chinese Primulas, Poinsettias, Heaths, Epacris, and similar plants, and they are very useful for dinner table decoration or for vases.—E. M. DAVIES, *Llanover*.

Small-flowered Cyclamena.—I have a few choice Cyclamens which have grown well during the past summer, and which are well furnished both with bloom and foliage, some having from sixty to eighty flower-buds on a plant, the latter being in 48-sized pots; but to my dismay the flowers which open are so dwindly and small that I am quite puzzled to know what has gone wrong with them. I have been keeping them on a light shelf in the greenhouse in a temperature ranging from 45° to 50°, giving air on bright sunny days, and I have given them weak liquid manure about once a week to help them, but without effect. Have they had heat enough, or should I withhold the liquid manure?—J. E.

Sub-tropical Plants without Glass.—I have little or no glass, but should like some of these in my garden. I could get a frame or small pit, if necessary. I shall be glad of any information as to sorts, &c. [The best plan will be to select beautiful hardy plants of picturesque habit, such as the Bamboos, Pampas Grass, Yuccas, &c. These, with healthy young Conifers, &c., will go far to produce a good effect. With a pit, a frame, or, if the soil be warm and well drained—even without them you might grow Cannas, perhaps the most valuable of all fine-leaved, flower-garden plants. Some, like the Castor-oil plant, may be raised in a warm pit or frame, and plants of great value, when properly placed in the flower garden, may be raised with hardy and half-hardy annuals. Among these may be named Artemisia annua and the common Hemp. Best of all, however, are shrubs and trees with fine foliage, such as the Ailantus, Pawlownia, Catalpa, Rhus, &c., which can be kept in a small state if cut down every autumn. These furnish superb foliage.]

THE LIBRARY.

CROSS AND SELF-FERTILIZATION OF PLANTS.*

THIS is a valuable contribution to the literature of plant culture and improvement, containing, as it does, the results of the author's experiments in the cross and self-fertilization of plants during a period of nearly twelve years. Starting from the obvious and now generally recognised fact that most plants are adapted by diversified and effective means for occasional cross-fertilization, it might have been inferred from this alone that some great advantage was derived from such a process; and it is the object of Mr. Darwin's book, as he tells us himself, to "show the nature and importance of the benefits thus derived." The adaptation of flowers for cross-fertilization has occupied the author's attention for the last thirty-seven years, and the experiments recorded in the volume now before us were suggested by his having raised, for other purposes, two large beds of cross and self-fertilized seedlings of the wild *Linaria vulgaris*. "To my surprise," says the author, "the crossed plants when fully grown were plainly taller and more vigorous than the self-fertilized ones;" but as bees are necessary to the due fertilization of this *Linaria*, so that the wild plants from which these seedlings had been raised must have been inter-crossed during previous generations, it seemed incredible that the difference in vigour could be due to a single act of cross-fertilization, and the result, although apparent enough, was attributed to other causes. Further experiments, however, made with cross and self-fertilized seeds of *Mimulus luteus* and *Pomora purpurea*, a plant better known in gardens as *Convolvulus major*, both of which, unlike the *Linaria* and *Dianthus*, are highly self-fertile. In all these preliminary experiments, the apparent superiority was so much in favour of cross as against self-fertilized plants, that a more extensive and careful series of experiments was decided on, and these, as we have before observed, occupied nearly twelve years to carry out. It is essential to notice here that all the plants were artificially fertilized, the one set with their own pollen—seedlings of these being called "self-fertilized," and the other series with pollen from other individual plants, their seedling offspring being termed "cross-fertilized." The manner in which the experiments were conducted, as well as real or apparent sources of error, are carefully gone into, but the results obtained are uniformly in favour of the cross-fertilized seedlings, and especially so in the case of the plants fertilized with pollen from an entirely fresh stock grown under conditions of soil, air, heat, or moisture which had caused their characteristics or constitutional peculiarities to vary in different proportions from those with which they were cross-fertilized. This cannot be shown better than by reproducing the accompanying Table.

	Plants from a Cross with a fresh stock.	Inter-crossed Plants of the same stock.	Self-fertilized plants.
<i>MIMULUS LUTEUS</i> —the inter-crossed plants are derived from a cross between two plants of the 8th self-fertilized generation. The self-fertilized plants belong to the 9th generation.	100	4	3
<i>ESCHSCHOLTZIA CALIFORNICA</i> —the inter-crossed and self-fertilized plants belong to the 2nd generation.	100	15	40
<i>DIANTHUS CARYOPHYLLUS</i> —the inter-crossed plants are derived from self-fertilized of the third generation, crossed by inter-crossed plants of the 3rd generation. The self-fertilized plants belong to the 4th generation.	100	45	33
<i>PETUNIA VIOLACEA</i> —the inter-crossed and self-fertilized plants belong to the 5th generation.	100	54	16

N.B.—In the above cases, excepting in that of *Eschscholtzia*, the plants derived from a cross with a fresh stock belong on the mother-side to the same stock with the inter-crossed and self-fertilized plants, and to the corresponding generation.

* "The Effect of Cross and Self-fertilization in the Vegetable Kingdom." By Charles Darwin, M.A., F.R.S., &c. London: John Murray, 1876.

As the author observes at page 15 that he has met with no observations on the effects of crossing and self-fertilizing the individuals of the same variety, we may here the more fittingly allude to Mr. Gower's interesting experiments, made some years ago, and published in Williams's "Choice Stove and Greenhouse Plants," p. 31, where, under the head of "Fertilization," we are informed of the astonishing results obtainable by cross-breeding, especially in the case of spring, autumn, and winter flowers, which, being to a great extent deprived of insect agency, require artificial impregnation. The experiments here alluded to have especial reference to the larger production of seed and increased vigour in the resulting plants. "For example," says the author, "we found that the stigma of one flower fertilized with pollen from a separate flower, but growing on the same plant, yielded four times as much seed as when left to fertilize itself, and above one-half more than when artificially impregnated with its own pollen. Carrying the experiment still further, and bringing pollen from another plant of the same species, but which had not originally sprung from the same stock, we found that the produce was three times the quantity yielded under the most favourable circumstances of the other experiment, namely the fertilization by pollen from a separate flower of the same plant. The contrast was, however, greatest with the flower which received no aid whatever; for with the foreign pollen applied artificially, the yield of seed was finer in quality, and twelve times as much in quantity, while in the respective cases of fertilization with foreign pollen (that is, pollen from a different plant) and with its own pollen, the yield was five times greater in favour of the foreign pollen. This will be seen more clearly by the following Table:—

EXPERIMENT 1.	EXPERIMENT 2.	EXPERIMENT 3.	EXPERIMENT 4.
Produce of a flower not receiving artificial aid in any way.	Produce of a flower fertilized with its own pollen.	Produce of a flower fertilized with pollen from a separate flower grown upon the same plant.	Produce of a flower fertilized with pollen from a different plant of the same species.
25 Seeds.	60 Seeds.	100 Seeds.	300 Seeds.
Yield of Seeds one-twelfth that of Experiment 4.	Yield of seeds, one-fifth that of Experiment 4.	Yield of Seeds, one-third that of Experiment 4.	Yield of Seeds highest both in quantity and quality.

This experiment was repeated several times, insects of all kinds being most carefully excluded from the flowers; and though differing in some cases in the number of seeds, yet in each the proportions were about the same. Now, although we are not prepared to assert that the like results can be obtained in the case of every species or variety, yet, from other experiments we have made, we are certain that the yield of seed will be larger and finer when the flowers thus receive the benefit of a cross with pollen from a separate plant, and where insect agency is deficient, it should always be supplied by artificial means."

The different phases of cross and self-fertilization as recorded and tabulated by Mr. Darwin, are doubtless of the utmost value and form the substantial basis of this instructive work, but it is in the general results deducible from these that we may expect cultivators to be most interested, and the benefits derivable from these are collected in the last chapter, from which we cannot do better than make a few extracts. The first and most important of these conclusions is that "cross-fertilization is beneficial and self-fertilization injurious," as shown by the superior difference in height, weight, constitutional vigour, and fertility of the offspring from cross-fertilized flowers. In the case of such plants as *Reseda* (*Mignonette*) and *Eschscholtzia*, which are sterile with their own pollen, but fertile with that from any other individual, it is pointed out that these plants must have been cross-fertilized during a long series of previous generations, and the artificial crosses as practised by Mr. Darwin cannot have increased the vigour of the offspring beyond that of their progenitors. "Therefore," says the author, "the difference between the self-fertilized and crossed plants raised by me cannot be

attributed to the superiority of the crossed, but to the inferiority of the self-fertilized seedlings due to the injurious effects of self-fertilization."

Another important result from a practical point of view is that "after plants have been propagated by self-fertilization for several generations a single cross with a fresh stock restores their pristine vigour;" and especially is this restoration valuable since "the good effects are transmitted by plants to the next generation, and, judging from the varieties of the common Pea, to many succeeding generations;" but it would appear as if there were a slow decrease of those effects in each succeeding generation, since many of the old varieties of self-fertilizing garden Peas are greatly improved by crossing them with fresh stock. There are some plants (and, according to our present knowledge, *Ophrys apifera* is a notable example) which habitually are self-fertilized, and as this plant, so far as we can judge, is as healthy and prolific as its cross-fertilized compeers, at present it would be desirable to know whether cross-fertilization would not be injurious rather than otherwise in the case of this and other self-fertilizing plants. Most probably, however, much of this mysticism ament the advantages of cross and self-fertilization comes of our looking at plants from an artificial and restricted stand-point; for it seems to us to be a matter of some importance whether we consider plant growth as it exists naturally, or as managed for private ends by the cultivator; for we must never lose sight of the great fact that re-production is hurtful rather than beneficial to the plant as an individual. Mr. Darwin's experiments go to prove that but little or no good follows cross-fertilization between flowers growing on the same plant, but on this point we require further evidence, particularly in the first place, because Nature especially provides for this kind of crossing in the case of Lobeliads, Agaves of the spicate group, and Composites; and, secondly, because, as we have already shown, Mr. Gower and, we believe, also the late Professor Lecocq, to say nothing of other observers, have noticed beneficial results from this phase of cross-fertilization, although not in such a marked degree as when two individual parents were employed. One fact pointed out by Mr. Darwin strikes us as being so important that we quote it in full:—"Seeds often lie dormant for several years in the ground, and germinate when brought near the surface by any means, as burrowing animals. They would probably be affected by the mere circumstance of having long lain dormant, for gardeners believe that the production of double flowers and of fruit is thus influenced. Seeds, moreover, which were matured during different seasons, will have been subjected during the whole course of their development to different degrees of heat and moisture." By this we see that cross-fertilization between distinct or differentiated stocks may have been carried on naturally for ages, owing to the sudden exposure and germination of seeds long buried, and the same result might attend the promiscuous dissemination of floating or winged seeds, since plants so distributed would be liable to become cross-fertilized by contiguity to plants in an old colony among which they had thus, as it were, become accidentally placed. We here see how it is possible for gardeners to improve their seeds by sowing mixed seeds of a variety, a result easily attained by purchasing a quart of any Pea, Bean, or other seed from three or four seedsmen in different localities, instead of three or four quarts of any given variety from one seedsmen. This may give a little more trouble, but, as Mr. Darwin so well demonstrates, the results thus obtainable are worthy of extra cultural care, and to all seed-growers, for trade purposes more especially, is this book to be recommended. The fact of different species or families of plants affecting certain localities in which the soil, moisture, or shelter is suitable to their growth, also tends to foster cross-fertilization between distinct stocks or races, since a suitable seed-bed thus furnished serves in some measure to forward the development of seeds of similar plants. In conclusion, we may truly say that the volume now under consideration is one which no intelligent cultivator can afford to be without, and especially is this the case because, apart from the immense volume of facts or direct information which it contains, set down in a plain and systematic manner, there is also a vast amount of suggestive matter which rouses the attention of the reader and which induces him to collate his own knowledge

as he reads. This, as we take it, is one of the objects kept in view by the author when preparing the work, and we now leave the book to the consideration of our readers as the result of priceless labour and research extending over the sixth part of a lifetime. B.

SAFFRON CULTURE IN THE ABRUZZI.

At the Pharmaceutical Conference at Bristol, Mr. H. Groves narrated a botanical tour in the Abruzzi, a sea of mountains where the Apennines present their grandest chain. On the lower spurs of these mountains, at a height of from 2000 ft. to 3000 ft., the cultivation of Saffron has been carried on for many generations. The mountains are calcareous, and, except to the botanist who has roamed them, present a very barren aspect, only relieved by the Beech thickets which straggle up their flanks as far as the tree limit. The cultivated ground commences below the Beech thickets, and is but a little less stony than the ground above; however, Corn and Potatoes thrive well, and a little lower down the Saffron plots are established. Here the stones are removed as much as is possible in a soil that consists of little else, and the ground is well trenched to the depth of half a metre and prepared in August with animal manure, preferably that of sheep, so as to be ready for the planting of the bulbs in the following October. The bulbs are planted in ridges with intervening furrows, which for economy of soil are sown with Corn, as this crop is gathered before the Saffron flowers appear, and the furrows remain free as pathways for the gatherers; besides which they are so disposed as to drain the plot. In the latter part of October and the whole of November the crop is gathered. Women gather the flowers early in the morning, and remove the stigmata at their leisure. Several flowers usually grow from one bulb, in some instances as many as ten to twelve. Once planted the Saffron plots remain good for two years, at the end of which time they are dug up, and in the third year are planted with Corn, after which they may be used again for Saffron, although they seek to keep the plots shifting as much as possible. Cows are lovers of Saffron bulbs, and field mice would commit great havoc were they not looked after by the peasants, who keep small guns and traps constantly in the fields. Many of the wealthy landowners owe their position to Saffron dealing, which in reality is speculation, as the price per kilo ranges from 100 to 300 lire. The poorer cultivators sell at the price of the year, but the richer dealers set aside their Saffron in tins if the price does not suit them. Some seasons have yielded such profits that one year's harvest has surpassed the value of the land under cultivation; at others the cultivation would have ceased were not the beds of two years' duration, and consequently no expense entailed to wait the result of a second season. The adulteration of Saffron is carried out in various ways, the chief one being by mixing with it boiled and shredded beef, the shreds being stained with Saffron water and afterwards dried. The filaments of the stamens are also dyed in the same manner and intermixed. Another adulterant is an almost impalpable yellow earth found occasionally in the mountains; and finally, before taking the product to market, it is damped with wine or water. Dealers accustomed to buying Saffron avoid these adulterated specimens, so that the Aquilan or Abruzzi quality rules higher than any other kind, not excepting that of Spain.

NOTES AND QUESTIONS ON TREES AND SHRUBS.

Pimelea decussata in Ireland.—At Ballyzibbia, near Mallow, Co. Cork, the seat of Sir Henry Becher, Bart., is a plant of this *Pimelea* growing in the open air. It has stood in the same situation for the past four years, and has never received the slightest protection during winter. It is in perfect health, and produces its flowers freely in the month of June each year. It is in a very sheltered position, but, nevertheless, it has withstood some 14° of frost.—E. R. Q. P.

Hydrangea paniculata grandiflora.—So much has been said of this new Japanese shrub during the past year that little need be added now. It has, according to "Moore's Rural," stood 28° below zero unharmed. It begins blooming early in August, and continues until after hard frosts. The thyrses of flowers, first greenish-white, then white, then rose, often measure 1 ft. in length and 20 in. in circumference. Every stem being thus terminated, the striking appearance of an entire plant may be conceived. There can be no doubt that this is one of the most valuable of all perfectly hardy shrubs.

Pruning Fir Trees.—Does the Spruce Fir suffer from cutting? Will you kindly inform me which is the best time for pruning this description of tree?—M. W. [Conifers are seldom injured by judicious pruning, that is when pruning is absolutely required, and done at a proper time, viz., between September and November, according to the season. In all cases, the cut points should be sloped, cutting outwards and upwards, so as not to expose the cut surface to the sun or frost. In a dry summer pruning can be done at a much earlier period than during a cold, wet one. Extensive ranges of Spruce Fir hedges along the roadside in several parts of Perthshire are cut every autumn, and look as well and quite as compact as a hedge of Yew.—M.]

COTTAGE GARDENING.

Salads.

An effort is seldom made by the occupiers of small gardens to supply anything like a succession of the materials used for salad making, and yet there are often patches of bare ground sufficient in many gardens, if made the most of, to do this without much expense or trouble. A cottage gardener cannot afford to have any headlands round his small patches of vegetable or fruit ground. Mustard and Cress, Radishes, Lamb's Lettuce, and even Lettuces, may be grown in the margins and corners, or be taken as a stolen crop, so to speak, in the early growth of others that require more time, without doing any injury. All this of course implies the possession on the part of the cultivator of that thought and perseverance that prompts him to leave the beaten track and strike out an independent path for himself, and there is as much need for this in cottage gardening as in other things. The cultivator who thinks is hardly ever satisfied with things as they are, and there is nothing so perfect that may not be improved. There is no royal road to the possession of any kind of knowledge, especially practical knowledge; that at least must be acquired by steady persistent effort, by cultivating that faculty of "trying again" when things do not turn out exactly as we wish—that always ultimately leads to success.

Lettuces.

To commence at the beginning of the season, sow a few seeds in February of the Tom Thumb, or any of the small, quick-growing Cabbage Lettuces—the early Paris Market is an excellent kind—in a pot in a warm, sunny window if there be no hand-light or frame; place a handful of rubble in the bottom for drainage, fill up to within $\frac{1}{2}$ in. of the top with light, rich soil, make firm, sow the seeds thinly, and scatter sufficient fine, light soil over to just cover the seeds, then press the surface down with the bottom of another pot or something similar. If the soil be just kept moist, the seeds will soon vegetate, when the plants may be hardened off, and be planted out 8 in. apart in any warm corner. A pinch of White or Green Cos may be sown at the same time and be treated in the same way, only when planted out give each a square foot of space. Unless there are means of disposing of a portion of the produce, a very small pinch of seeds at each sowing will be ample. Little and often should be the rule. At the same time that the seeds are sown in the sunny window just a pinch should be sown in some warm corner in the open air: these will form a good succession to the plants raised in the window, and from this time to the middle or end of July sow a few seeds at intervals of every three weeks or so. The June-sown plants, if it can be managed, should be sown thinly, without transplanting, on some cool, partially-shaded border, for in hot weather both Lettuces and Cauliflowers, if transplanted, are more liable to bolt prematurely than if undisturbed. The Bath or Brown Cos should be the kind principally sown in July and August for autumn and winter use, as it is hardier and better able to resist cold weather than other kinds. A few seeds may also be sown about the 1st of September to stand in the seed-beds all winter to put out in spring. Small plants generally go through a severe season better than larger ones, but in very severe weather it is easy to lay a few fronds of Bracken over them when there is a sharp frost unaccompanied by snow, but when the ground is covered with snow, no other protection is necessary, as that is Nature's own covering, and, unlike all others, it protects without blanching or weakening. Although I recommend frequent sowings to be made, it does not follow that large quantities of seeds need be purchased. Probably in many, if not most gardens the same quantity of seeds now used, if divided into six or eight portions and sown at intervals through the season, instead of being all sown at once or at the most twice, would suffice to give a moderate succession. Of course some pains must be taken to place the seeds in a suitable position to germinate, and although Lettuce will produce a very useful crop under very moderate cultivation, yet to grow a first-class crop it requires as much skill and attention as it does to produce a prize dish of Potatoes or Cauliflowers. Mulching in dry, hot weather will well repay the trouble. Liquid manure, where it can be obtained,

will insure a quick, crisp growth; and, where neither are available, a frequent stirring of the surface an inch or so in depth will be of great service. All Cos Lettuces are improved by being tied up to blanch a few days before they are used, as are also some of the large, loose-growing Cabbage Lettuces. The Brown Cos from the July and August sowings for autumn and winter use should be planted out on a warm, dry site, and if covered up with dry leaves or Fern when nearly fully grown, and the plants themselves are dry, they will keep in good condition a long time, and will become white, crisp, and delicate.

Endive.

This is rarely grown in small gardens, but it forms a very desirable addition to the salad bowl in autumn and winter, especially if Lettuces be scarce or inferior. Sow towards the end of June (if sown early the plants are very likely to bolt before they are large enough for use) in drills 1 ft. apart, and when large enough thin out to 10 in. or 12 in. apart in the rows; the thinning may be planted elsewhere the same distances asunder. Sow again in July, and transplant the principal part in some open, well-exposed situation; the remainder should be planted in some well-drained, raised border. A few more may be sown in August if some shelter, such as a frame, can be found for them in winter. There are various ways of blanching them, viz., by laying boards or slates over the plants when they are full grown and quite dry; tying them up and placing inverted flower-pots over them, with pieces of slate over the holes at the tops to exclude light; covering them with dry leaves or coal ashes; or taking them up with balls of earth and storing them in a dark cellar—placing them, in fact, in any position not too damp to induce decay, and from which light can be excluded. Of course only a few should be blanched at a time, as this hastens decay, and they should not be blanched till they nearly fully grown. In other respects Endive requires much the same treatment as Lettuces. There are several varieties, but the Green Curled is the most useful.

Radishes.

Sow the Salmon Short-top or Wood's Frame on a warm rich border early in February, and cover with clean long straw or mats. As soon as the seeds come up the coverings should be taken off every fine day, and replaced at night until the plants are gradually inured to the weather. From March to September sow the French Breakfast—an Olive-shaped kind—at intervals of a fortnight or three weeks. The early and late sowings may be made on a warm border of light, rich soil. In very hot weather sow in a north or shady aspect, at other times sow in any open position. Quick growth is essential to mild flavour; therefore abundant watering in dry weather will be found serviceable.

Rampion.

This is scarcely known in small gardens, and I just mention it here as it proves a desirable addition to winter salads. Sow in May, in a partially shaded position, such as the west side of a wall or hedge where the soil is light and rich. The ground should be well prepared, made firm, and the surface smooth and level. The fine dust-like seeds must be thinly and evenly sown over the bed, which might be about 8 ft. long and 4 ft. wide, and the least possible covering of fine soil will be sufficient. The young plants when large enough should be thinned out to 3 in. apart, and the thinnings transplanted if required, taking care to insert the roots straight down. They will come into use in autumn, and will continue in season during the winter and early spring months. The white roots may be eaten like Radishes, or both roots and leaves cut up with other ingredients for salad.

Corn Salad or Lamb's Lettuce.

This grows well without much trouble in almost any soil. Sow in February or March for the first crop in drills 6 in. apart, and thin out to 4 in. asunder. They are best used when quite young. Sow again in May, June, and August under similar conditions. In gathering the winter crop only the outer leaves should be used, leaving the roots for further production, but in summer the whole plant may be cut up when young.

Mustard and Cress.

The culture of these is generally so well understood that little need be said respecting it. Sow thickly in drills from February to September as often as may be necessary to keep up the required supply. In hot weather sow in a shady position and keep moist by laying Rhubarb leaves over the drills until the seeds germinate. In winter they may be forced in any light position where the requisite temperature can be secured. In a warm kitchen or room a constant supply might be kept up without much trouble.

E. HOBBDAY.

A New Hardy Magnolia (M. Halleana).—Mr. S. Parsons,

junior, speaks with enthusiasm of this shrub in the "Country Gentleman":—"This plant came from Japan to America nearly twenty years ago, but continues very little known; indeed, hardly recognized in the country at large. The cause may be found partly in the general difficulty of propagating Magnolias, and partly in that lack of regard for plants that prompts acceptance of the meagre, second-hand information of dealers. All who see *M. Halleana* in our nurseries are delighted with its beauties. The first impression made is one of intense individuality. It rounds out and matures into a complete bush of symmetrical form and solid wood, and is a true member of the scrubby type of Magnolias. The same excellence appears also in unrivalled earliness and beauty of flowers. These somewhat resemble the Water Lily in the translucent whiteness of the narrow petals, and surpass all others in delicate, subtle odour. The leaves, of rich green, neither large nor small, are in agreeable keeping with the general habit, and, altogether, the effect produced is that of a noble plant.

Trees and Rabbits.

—Would it injure young trees to put tar round them to prevent rabbits from destroying them?—W. [Tar is objectionable, as it is injurious to young trees. A mixture of soot, sulphur, lime, and cow manure, made thin enough to be put on with a brush, will help to ward off the attacks of rabbits during ordinary seasons. Blood has also been found effective sprinkled at the base of the trees. Wire netting or tying Birch or Heath round the necks of the plants, is the only effectual remedy in severe seasons where rabbits are numerous, and where other food is scarce; but, where large plantations are made, these are troublesome as well as expensive remedies, and unless it is desirable to keep the rabbits, the best way is at once to take means to destroy them.—C.]

Influence of Forests on Ozone.—In a note by M. L. Fautrat in the "Bulletin Hebdomadaire," No. 475, of the Scientific Association of France, it is shown from observations made at Halatte and Ermenoville, that less ozone was observed in forests, particularly forests of Pine, than in the open country, and more ozone at a height of 46 ft. above the ground than near the surface.

TREES AND SHRUBS.

PICEA NORDMANNIANA IN WILTSHIRE.

THIS distinct and beautiful variety of Silver Fir was discovered by Prof. Nordmann growing on the summit of the Crimean Mountains; it was afterwards found to be common on the declivities of other mountains adjacent to the Black Sea towards the east, where it forms a majestic tree from 80 ft. to 100 ft. in height. Since its introduction into this country (some thirty-two years ago) it has proved to be one of the hardiest varieties of the Silver Fir. It commences growth late in spring, thus never suffering from the effects of spring

frosts—a great recommendation for planting in low-lying situations, where many of the less hardy Conifers do not succeed satisfactorily. It is slow of development when young, and inclined towards a spreading habit; but when once planted out into permanent quarters, and its tap-root fairly established in the ground, it begins to grow more rapidly, and soon shapes itself into a well-balanced tree. In suitable soils it makes an annual growth of from 15 in. to 18 in. Deep, heavy, rich loam, resting on clay or rock, is the most suitable formation for its healthy progress. The contrast in its pale green foliage in summer between the old and young growths, and the beautifully glaucous coating underneath its foliage, is very effective; while the silvery appearance underneath its leaves is hardly perceptible in young plants unless closely examined, but when the tree is older, and upwards of 20 ft. high, this glaucous appearance is at once in striking and beautiful contrast with the colour of the branches on the upper side. The timber of this tree is said to be harder than that of the Common Silver Fir (*Picea pectinata*). It is rather premature to



Nordmann's Silver Fir (*Picea Nordmanniana*).

form a decided opinion as to the quality of its timber; I however venture to predict that it will never be of great commercial value, neither do I think that it will ever attain to the noble proportions that belong to the common variety in Britain. The latter tree grows to a height of upwards of 140 ft., girthing 16 ft. at 5 ft. above the ground, and containing from 450 ft. to 550 ft. of timber; whereas *Picea Nordmanniana* only grows to a height of 100 ft. in its native habitats. Silver Fir timber does not command a high price—at the present time it is selling at about 1s. per ft.; Larch timber is worth one-half more; therefore *Picea Nordmanniana* can hardly be recommended to be planted with a view to its becoming a profitable timber tree; but, on the other hand, for

its ornamental character, planted singly or in groups amongst other trees, it is one of the best of the Picea family.

Longleaf.

GEORGE BERRY.

RHODODENDRONS NOT AMERICAN PLANTS.

In an article that appeared some time ago in a contemporary the impropriety of calling Rhododendrons "American plants" is alluded to. Rhododendron catawbiense, Ledums, Andromedas, Kalmias, &c., the writer of the article in question states, have "very naturally acquired the name of American plants—a term still in use, but one that conveys quite a wrong idea, and had better be discarded." He then goes on to show that grand as the *R. arboreum* from India is, it "could not exist permanently except under the protection of glass," consequently the hybrids from it are not American, because raised in England. I venture to ask what hardy Rhododendrons would be without *catawbiense*? It was once asked, "who reads an American book?" The writer of the article in question does not, as we shall soon see. "The work," he says of hybridizing, "has been accomplished almost wholly in England, though the Belgians have attained considerable success in that direction. In any case these beautiful hybrids are all emphatically European, and in quite a preponderating degree purely English, therefore the impropriety of calling them American plants. Hybridizing may have been practised, for aught we know, by Americans, but so far, in England, no results of it are known to exist." Now all thanks to the Waterers, the pioneers in Rhododendron and Azalea culture in Great Britain, and to Messrs. Rolisson, Standish, Noble, and other English cultivators, who have produced many fine varieties of this shrub: but where are the Belgian growers? Did not the late Mr. Van Houtte produce *R. fastuosum flore pleno*, which Mr. Waterer in his last catalogue says should be in every collection? In London's "Arboretum," under date of 1836, he gives a list of thirty-five varieties as the total produce of English hybrid Azaleas up to that time, including the Highclere seedlings, and ninety-five varieties of Belgian hybrids. And who produced the fine double Azaleas? Van Houtte, in his catalogue of 1856, enumerates upwards of 200 varieties of Rhododendrons, and 100 of them are of Belgian origin. For aught the writer knows, so far, in England, as the results are known to exist, America may be a myth. One would suppose that in writing upon the progress of horticulture, particularly upon hybridization, such progress would not be confined to one country, unless there were no means of knowledge accessible; but when we have had three or four horticultural periodicals published for forty years, it would seem that the information is ample, and not to be familiar with the subject is inexcusable for one who undertakes to write for the information of the public. Probably not one in ten of our American amateurs and nurserymen who saw Mr. Waterer's fine exhibition of Rhododendrons in the Centennial grounds in Philadelphia were at all surprised, unless it was at their great beauty, for all of us know what splendid varieties have been produced in England. Americans do not wait, like Micawber, for something to turn up, and in these days of railroads and telegraphs, for a writer to state that, for "aught he knows," such things do not exist because he has not seen them in England, only shows that though Greek may be at his tongue's end, he has yet much to learn in the way of horticulture.

Boston.

C. M. HOVER.

ORNAMENTAL BIRCHES.

Few trees are less fastidious as regards soils and situations than Birches; they thrive in the lightest and most porous of loams, in peat, and often in fissures of rocks on mountain sides under circumstances in which most other trees would fail. Of the known species and varieties the following may be regarded as the most distinct and most worthy the attention of planters of decorative trees:—

White or Common Birch (*B. alba*), so named from its beautiful silvery bark, is the species found wild in the mountain glens in Scotland, as well as all over the coldest and most inhospitable regions of Northern Europe, extending even to the verge of perpetual snow. In alluvial valleys and more sheltered districts it rises to the stature of a lofty tree, with a straight stem from 50 ft. to 70 ft. in height, amply furnished with long, wiry branches more or less pendulous, but on high exposed altitudes it dwarfs down to a mere bush. In Iceland and Lapland it forms the principal ligneous vegetation, clothing vast plains and valleys, and rarely rising higher than from 2 ft. to 4 ft. The leaves, which are light green when they unfold in spring, change to a darker tint in summer, and die off a bright

yellow. The flowers, which come out in February or March, are individually very minute, but are produced in great profusion in pendulous catkins. Both in a wild and cultivated state this tree occasionally exhibits a curious malformation, which some authorities attribute to insect agency, some of the branches forming themselves into dense, bushy tufts resembling birds' nests, and having an interesting and not unpleasant effect, particularly in winter, when, from the absence of leaves, they are seen to full advantage; country people call them "Witches' Besoms." The wood, which is white, close-grained, and susceptible of a high polish, is used in turnery, and a large quantity of it is annually made into charcoal. Though extensively planted on the margins of woods in bold exposed situations as a shelter to more tender trees, the Common Birch and its varieties rank among the most ornamental of park or pleasure ground trees; hence the frequency with which it is found occupying prominent places, both as single specimens and associated with other and rarer trees of denser growth and more sombre tints. The weeping form, which comes from seed along with that of a more upright growth, is probably the true species, as its bark is the more silvery of the two; at all events it is the one most in request for decorative planting, and doubtless that which, from its singularly elegant outline and the gracefulness of its spray-like branches, has so often attracted the attention of the poets. From a number of varieties in cultivation more or less distinct, the following may be regarded as the most interesting:—

B. A. LACINIATA PENDULA, known as the Fern-leaved Weeping Birch, is a very beautiful form which has the fine drooping branches of the species, with leaves deeply cut or lacinated.

B. A. URICEFOLIA, so named from its leaves resembling some of the species of Nettle, has foliage deeply lacinated, serrated, and hairy, and therefore very distinct from that of the parent. It is quite as handsome as any of the other forms, and richly deserves a place among the choicer trees.

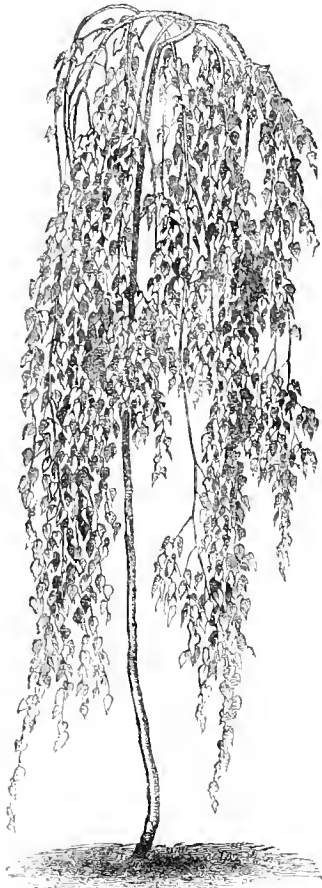
B. A. PENDULA ELEGANS, sometimes called Young's Weeping Birch, is a most desirable variety, differing only from the species in its more decidedly weeping habit, which it assumes while in a comparatively young state. It is one of the finest of our ornamental trees, and cannot be too highly recommended to planters who, from limited space, have to confine themselves to a small selection.

Indian Birch (*B. Bhojputra*).—The singular name of this species is split by some writers "Bajjputra." It was first sent home in 1840 from the Garwal Mountains, in Kamaon, where in valleys at high altitudes, it forms a straight-stemmed, bushy-headed tree of from 50 ft. to 70 ft. in height. The leaves are oblong-acute, prominently serrated, and somewhat larger than those of the Common Birch. The bark is light brown, a feature which gives the tree a special value for decorative purposes. It cannot be regarded as the hardest of the species, and should never be planted in cold, exposed situations; in moderately sheltered districts, however, it is found to stand our winters without injury, and to grow with great luxuriance. As its merits become better known it will no doubt be more extensively introduced into collections of ornamental trees.

Sweet Birch or Mountain Mahogany (*B. lenta*).—This species is indigenous to a vast area in North America, extending from Canada to Georgia, and attaining heights of from 50 ft. to 70 ft. It has been cultivated in this country since about 1750. Its leaves are large, cordate-ovate, sharply serrated; and as they unfold in early spring they are covered with a minute, light-coloured pubescence. The flowers, which are in larger catkins than those of the Common species, have a delicate aromatic fragrance; they are at their best about the end of May. This tree furnishes the well-known American Birchwood, so much in favour with cabinet makers, who employ it in making many articles of furniture. It grows here very freely, and has much of that light, graceful aspect so much admired in all the other species, to which, though distinct enough to give a feature in woodland scenery, either standing alone or grouped with other trees, it has a general resemblance. From its tendency to early growth, and consequent liability to suffer damage from spring frosts, it should be planted on a dry soil and in a moderately-sheltered situation.

Dwarf Birch (*B. nana*).—This is a dwarf, shrubby species found wild on several of the mountains in the Highlands of Scotland, in Lapland, Sweden, Northern Russia, and in the colder parts of North America. In a wild state it is rarely seen above 3 ft. high; but cultivated in our gardens it grows with great vigour, and reaches heights of from 4 ft. to 6 ft. The leaves are orbicular, crenate, and reticulated. The habit of growth is dense, the branches much divided into short wiry branchlets. It is a quaint little shrub, useful for planting in front of those of more robust growth, and admirably suited for rockeries. It thrives best in damp, peaty soil, but will grow tolerably well in cool, stiff loam.

Paper Birch (*B. papyracea*).—This species is widely diffused over the colder regions of North America, where it grows to heights of from 60 ft. to 70 ft. It was first sent to Europe in 1750. The leaves are ovate-acuminate, serrated, and slightly downy on the under surface. The bark has a beautiful silvery whiteness, which is much admired, and is all the more conspicuous as the tree reaches a large size. The North American Indians make their canoes from the bark, stretching it in long wide strips over a wooden frame, sewing them together with the root fibres of the White Spruce, and rendering the seams water-tight with the resin of the Balm of Gilead Fir. The wood is hard, very durable, and takes on a high polish. With us it is a valuable tree for decorative planting, having a distinct-looking



A Weeping Birch.

appearance, the branches being more upright than those of the other species. It requires a dry and sheltered situation, as, like the other American species, it has a tendency to start into growth early in spring.

B. GRANDIS, a variety of the above, is a magnificent tree, differing from the species in having larger leaves and a more upright and robust habit of growth. It is as yet comparatively little known, but well worthy of being extensively introduced into collections of the rarer ornamental trees.

Poplar-leaved Birch (*B. populifolia*).—Another American species found in many parts of Canada and the United States, growing in dry, rocky places, and rarely attaining greater heights than from 20 ft. to 30 ft. It was introduced in 1750. The leaves are deltoid-acuminate, sharply serrated, and smooth. The bark is of a light cinnamon colour. Its habit of growth is broad and bushy, much denser than that of the Common Birch. It forms a neat dwarf specimen tree, thriving under the same circumstances as the other American species.

B. LACINIATA or **INCISA** is a very distinct form of it, the leaves being somewhat larger and much more deeply cut than those of the species.—“The Gardener.”

A FRENCHMAN is occupying himself in making a perfume from Peach leaves, which promises to become delicious.

THE KITCHEN GARDEN.

DOES SOIL WEAR OUT?

We sometimes hear it remarked that certain plots of soil are worn out and will not produce good crops, and the question arises, Is it the soil or the cultivator who is at fault? for the first and greatest requisite of good culture is to restore to the land the elements necessary for the growth of crops that have been extracted or obtained from it by previous ones, so that it may not decrease, but rather increase in fertility. Although applicable to all crops, whether in field or garden, let us confine ourselves to the kitchen garden under spade cultivation, as most likely to suffer from a constant repetition of crops of the same kind; and we have here a good practical illustration, for a portion of our kitchen garden has occupied the same site for hundreds of years, and is now as prolific as those portions that have been but recently enclosed. The natural soil is of considerable depth, and consists of a moderately light sandy loam, which will produce almost any kitchen garden crop in perfection, when first broken up, with but little addition as regards manure; but it is not at all the rule for such favourable conditions to exist on the spot selected for a kitchen garden. However, I never saw any soil so bad but that it was capable of yielding good results after careful cultivation, and in such cases old gardens are certainly preferable to new, as in soils of a stiff, retentive character it is a work of time to get depth of soil enough into a condition sufficiently friable to be suitable for many crops, while in the case of light, sandy soils the very opposite applications must be resorted to in order to give the necessary fertility and consistence to mature crops.

When a choice of substances containing manurial qualities is at command, much may be done to modify the character of any kind of soil. On stiff retentive land in which clay or heavy loam predominates, such substances as ashes or burnt earth, sand or grit, peat, leaf-mould, and stable manure, either used separately or combined, will, with careful cultivation and exposure to the action of frost, be highly beneficial; while light sandy soils that are usually poor in manurial matters, are equally benefited by the addition of clay or marl, cow and pig manure, salt, and such substances as tend to enrich the soil and retain moisture. When the above-mentioned substances are abundant, it will still be well to bear in mind that every kind of vegetable refuse that collects in a garden contains more or less a valuable manure, which will, if retained, be available for future crops. Deep pits or excavations sufficiently large to contain all that collects in one year is the plan we adopt, and advantage should be taken of frosty weather to wheel or cart the whole quantity into one ridge, the most decayed portion going to the top, and covering the whole surface with a good coating of garden soil. On this we plant Vegetable Marrows and ridge Cucumbers the following May, and always get abundance of fruit until the frost cuts them down, when the whole mass will be in good condition for applying to stiff soils, or as a top-dressing to orchard trees, for which purpose it is preferable to fresh manure, as it is immediately available as food to the surface roots, and tends to keep them within reach of atmospheric influences, thereby inducing fruitfulness, and at the same time increasing the depth of fertile soil. Trenching or deep cultivation is an important operation, whereby the worst soils may be eventually converted into fertile ones, and those of naturally good formation may be rendered exceedingly prolific, and kept in that condition for an indefinite period. Trenching should be performed according to the nature of the soil to be operated on, for when it has not previously been deeply cultivated, only a small portion of the bottom spit should be brought to the surface at first; but if well broken up, and plenty of manure incorporated with it as the work proceeds, in a few years it will be fit to bring to the surface for exposure to the atmosphere, thus securing fresh food for succeeding crops. Old kitchen gardens, or any lands that have been long under cultivation, and on which large quantities of manure have been applied, and a limited rotation of crops has been obliged to be adhered to, are greatly benefited by bringing the bottom spit entirely to the top, whereby a partial rest is given to them,

and fresh food supplied. For any crop that is intended to remain any length of time, as, for instance, Strawberry or Raspberry beds, &c., it is advisable to trench deeply and manure heavily, both previous to planting and when they are worn out. When it is possible to select the season for trenching, autumn or early winter is preferable, as the surface then gets thoroughly pulverised before spring seed-time arrives, and a good seed-bed is worth all the extra labour it takes to secure by the future development of the crop. The interval between successive trenchings depends very much on whether a rapid rotation of crops and high culture is adopted, or wider intervals for cultivation and lying fallow, with smaller applications of manure.

A decided improvement as regards the cropping of kitchen gardens has been pretty generally observed within the last few years, more especially as regards the grouping of certain crops, whereby their special wants may be more readily attended to than where a mixed system is followed. For instance, it was originally more the rule than the exception to see standard and bush fruit trees freely dotted along the margins of every quarter in the garden, whereas the rule is now to group crops that are stationary for a given number of years, such as bush fruits, Raspberry, Strawberry, and Asparagus beds, and to leave the quarters devoted to annual cropping entirely open. There is no necessity for separating them into distinct gardens, for, on the contrary, a quarter or square that has been long under vegetable crops will be decidedly benefited by a course of fruit culture, and *vice versa*. The requirements of various places necessitate distinct methods of cropping, and sheltered borders are obliged frequently to be cropped differently from the general routine of open quarters, in order to meet the demand for early vegetables. But a general rule may be advantageously observed, to follow heavy manuring and trenching with the most succulent moisture-loving crops, such as Cauliflowers, Cabbages, Peas, and Salads, and to succeed them with root crops that are apt to be rather injured than improved by fresh manures. There is a very general impression that crops in kitchen gardens of very long standing are more subject to disease and insect plagues than those in freshly broken up soil, but such is not our experience, as we find the presence or absence of such evils more affected by the variety of soil than the length of time it has been under cultivation, that is, if ordinary precautions be taken to guard against them.

JAMES GROOM.

Hechtan.

Jerusalem Artichokes for Stock.—The cultivation of Artichokes is being greatly extended in the Western States of America. Many cultivators prefer them to any other root for their cattle and hogs, and believe that they cause cows to yield a larger flow of milk. After the fact that they are excellent food for stock, Artichokes owe their popularity in large part to their being raised with little trouble. They are adapted to all soils, though the crop is more profitable from rich land. They are also very productive, yielding from 700 to 1000 bushels per acre. There is no insect enemy that makes the least impression on them, neither are they injured by the severe cold of northern winters, and rarely from the drought of summer. Like the Parsnip, they require no protection in winter.—C.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

The Golden Trophy Tomato.—This is a sport from the well-known Trophy, but it is a stronger and more rapid grower, more productive, and ripens a week earlier, continuing until frost. The fruit is almost an exact counterpart of the Trophy in form and size, of a light yellow or straw colour, occasionally faintly streaked with red; the flesh is firm and solid, containing but few seeds. Its flavour is entirely different from that of any variety with which we are acquainted, being free from the strong Tomato taste and fragrance which belong to most other varieties, having very little acidity, and when eaten raw without seasoning resembling in flavour some varieties of Apples. [Tomatoes free from Tomato taste are doubtful additions to the family.]

The Pigeon Berry (*Phytolacca decandra*), also called Poke and Garget Root, is not often planted in the vegetable gardens of this country, still, it is, according to "Moore's Rural," a valuable esculent, and deserves to be more extensively cultivated. It will thrive in almost any soil and situation, and may be readily propagated by dividing the old roots or from seed. The young shoots are used as a substitute for or in the same manner as Asparagus, which they resemble in taste. The sprouts may also be cooked in the same manner as asparagus, or as spinach, for greens. There is also an annual variety, the *Phytolacca*, known as *P. esculenta*, but the former is the preferable species, on account of being a perennial.

PLATE LV.

THE CATCHFLIES, OR SILENES.

(WITH A COLOURED FIGURE OF *S. PUMILIO*.)

Drawn by H. NOEL HUMPHREYS.

The genus *Silene*—of one of the pigmy forms of which the accompanying plate (prepared from a plant in Messrs. Backhouse's nurseries at York) gives a charming illustration—is one of considerable extent. Amongst the 200 species which it numbers there is one special section characterized by extreme dwarfness and compact Mossy habit of growth. So distinct is it that I have often wondered that it has not been separated from the *Silenes* and re-christened under a special generic title of its own. The plants included in this small section are known by the name of Moss Campions or Cushion Pinks—both appropriate titles. The genus contains amongst its numerous annual and biennial species few showy plants, but among the perennials there are various species of great beauty. Altogether the genus is—so far, at least, as our present knowledge goes—confined to the Northern Hemisphere; it is certainly true that there is one species figured many years ago in the Bot. Mag., and chronicled as a native of the Cape of Good Hope; but the history accompanying it gives no particulars as to its introduction, and possibly its habitat may have been recorded in error; be this as it may, it stands as a solitary exception. Southern and Central Europe must be looked upon as the home of the *Silene*, though a few species extend westward to America, a few eastward to Siberia, while a sprinkling of them will be found on the southern shores of the Mediterranean and in Asia Minor. The English appellation (Catchfly) originated doubtless in the excreted viscid fluid given out by the flowering stems, constituting a means by which small flies are caught in numbers.

The Stemless Section.

Pigmy Moss Champion (*Silene pumilio*).—So happy has the artist been in delineating the general outward appearance and beauty of this species that a detailed description is rendered almost unnecessary. To those who are familiar with our native *S. acaulis*, a distinctive character will at once be obvious, in the leaves being longer, more linear in shape, and less dense and compact in arrangement. The flowers are much larger, the petals being wider apart, and broken up towards the point into an irregularly divided and undulate margin; the calyx is tubular, and in its deep chocolate-crimson colour adds its quota to the general beauty of the flowers. It is a native of high altitudes on the Alps of the Tyrol, where it blossoms and grows freely; originally introduced in 1823, it, I fear, never became established in general culture, and was re-introduced some years ago by Messrs. Backhouse, but is still very rare in cultivation; nor, indeed, would its condition when seen lead one to suppose that it possesses a tithe of the vigour of the allied species from our own native mountains. In pot culture it completely failed with me. I apprehend that the position best adapted for its cultivation would be in a sunny nook of a rockwork amongst a mixture of firm peaty soil and sand, well secured with nodules of broken stone; and being a hard, woody-rooting plant, I would suggest that far greater success would be attained by getting seeds rather than plants from its native habitat, which latter always suffer seriously in transit. By means of these seedlings a fair chance would be given for the young plants to adapt themselves to such a change of circumstances as must necessarily occur between the Tyrolean mountain tops as compared with our lowland, artificial rockeries.

Stemless Moss Champion (*S. acaulis*).—This species possesses a hard, woody, branching root-stalk, the stem growth being exceedingly compact, each branchlet furnished with a dense arrangement of short, linear leaves, gradually tapering to the point, and ciliated at the base, but devoid of pubescence; the flowers are solitary, on stems so short as just to raise them above the dense foliage; the petals are entire as to their margin, and slightly notched at the points. The usual colour is a deep rosy-purple. Every one who has seen this plant in its native habitat, whether on the mountain tops of Wales, Cumberland, or in Scotland, must have been struck with its wonderful beauty in the month of June, when it forms a perfect carpet of blossom—here nestling high up amongst the broken fragments of rock, there spreading out in soft, cushion-like masses—thoroughly endorsing the appropriateness of its popular title, Cushion Pink. Under ordinary garden culture, to which it is easily amenable, it blossoms in May, but rarely are its flowers produced in



such wondrous profusion as in its native wilds. This plant may be readily increased by division of the tufty roots, or by seeds, which it produces sparingly. The flowers have a tendency to become dioecious, a characteristic which is occasionally to be found both in this genus and the closely allied *Lychnis*. There is a white variety—not uncommon—whose flowers are somewhat smaller in size.

Emerald Cushion Campion (*S. exscapa*).—Literally translated, this specific term is synonymous with that of the previous species; but, in fact, the flowers are so far stemless that they are perfectly embedded amongst the dense mass of foliage—their bright colours resembling rubies in an emerald setting. Possessing many of the characteristics of the former species, of which, indeed, it is considered by some authors as a mere variety, it is distinguished by the leaves being broader at the base, more fleshy, and devoid of the ciliated hairs; the petals also are narrower and devoid of the emarginate indentation at the top. In growth it is equally free, and retains a much brighter green colour as regards the whole plant throughout the season than does its close ally, *S. acanthis*, whose representative type it appears to be in the more northern regions, for it occurs in Norway and Lapland more abundantly than in the Swiss Alps, though by no means absent in the latter. I have been informed by travellers who have seen both species growing side by side in their native habitats that they may be distinguished with the utmost ease, even by a botanically uneducated eye, the same difference being noticeable under cultivation. I have come to the conclusion, therefore, that we are quite justified in recognizing its specific identity.

The Many-flowered Section.

Four-toothed Catchfly (*S. quadridentata*).—A diminutive and wonderfully floriferous plant, with small, lanceolate leaves, each blossom of the purest white, supported on stems about 3 in. high, and each petal regularly notched into four distinct blunt divisions or teeth at its extremity, the whole forming a tuft of unsurpassed loveliness and purity. This charming plant is a native of the Alps, and, though considered somewhat delicate, is perfectly hardy, but subject to the influence of damp rather than of cold. It seeds freely, and will readily establish itself by this means in the chinks and crevices of the rockery. I may here note that seedling plants established in small pots will survive the winter where large, vigorous-growing plants will succumb.

S. QUADRIDENTATA var. *QUADRIFIDA*, considered by some as a distinct species, is, I fear, only a slender form with smaller flowers, and the petals more deeply notched. When raised from seeds, which it produces equally free with the last species, amongst its progeny all sorts of gradations between the two types will be found, for which reason I think it better to consider it only as a variation.

Alpine Catchfly (*S. alpestris*).—This is recognised by some as a British plant, one or two specimens having been seen on one of the Scotch mountains; the authority, however, appears doubtful, and any one who is familiar with the persistent habit of the root-spreading propensities of the plant, can easily understand that if once established it would be very difficult to eradicate. In cultivation it forms a mass of underground stems, from which arise a few inches above the ground, tufts of smooth, lanceolate, deep green leaves, tinged with a chocolate shade. The flowers are borne on branching cymes 5 in. or 6 in. high, and are pure white, each petal being neatly and sharply notched into four lobes at the extremity, of larger size, but very similar in appearance to the previous species; the flower-stems are covered with dark, glandular hairs that exude a viscid fluid. There is a narrow-leaved form that is sometimes met with under the title of *S. saxatilis*, but that species, as described by Sims, and figured in the *Bot. Mag.*, belongs to quite a distinct section. The plant under notice is found in abundance on the mountains of Central Europe; it is equally well adapted for the front rank of the herbaceous border as for the rockery, having a vigorous habit of growth, and increasing readily by division and by seeds. This, and the two preceding species, are sometimes to be met with under the distinct generic title of *Heliosperma*, arising from the fact that the seeds are flat, circular in shape, and surrounded by a membranous ring, finishing off with a ciliated margin; hence the applicability of the name, which, literally translated, means “sun-seed.”

Elizabethan Catchfly (*S. Elizabethæ*).—This charming plant, from whose woody root-stock arises a mass of floriferous stems to a height of 8 in. or 9 in., has its stems covered throughout with a viscous pubescence, which is especially pronounced in the upper portion. The flowers are fully 1 in. in diameter, of a bright crimson colour, the limb or expanded portion of each petal being broad, very slightly bilobed, and irregularly notched round the margin. In general aspect it reminds one of a very compact-flowered *Clarkia*, with which its tint of colour exactly corresponds. It is a native of the Italian Alps

and the Tyrol, and blossoms in July. Its period of flowering is of considerable duration, owing, as in the preceding species, to the successional rather than to the simultaneous expansion of the flowers. It is a matter of no little surprise that so lovely a plant should continue to be so long a comparative stranger in our collections as it hitherto has been, although introduced some fourteen or fifteen years ago.

Saxifrage Catchfly (*S. Saxifraga*).—A slender-growing plant forming elegant lax tufts. The stems (single-flowered) attain a height of 8 in. or 9 in.; the petals are deeply notched, and, though the individual flowers are not showy, when combined in numbers they have a very effective appearance. They are French white in colour,

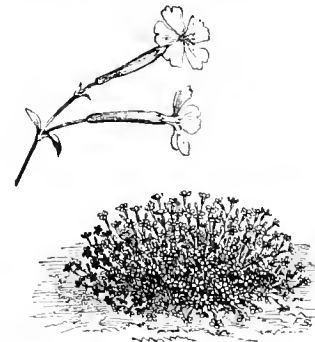


Saxifrage Catchfly (*S. Saxifraga*).

and are produced in succession, extending through the months of June and July. Native of the south of France. It is equally well adapted for the border as the rockery, growing freely in any ordinary garden soil. Being of a very tufty growth, it should be increased by seeds rather than by division.

Rock Catchfly (*S. rupestris*).—Very closely related to the preceding, differing chiefly in its narrower leaves and more compact growth. It is a native of the Apennines and the Vosges, where it abounds in dry, exposed localities.

Late-blooming Catchfly (*S. Schaftæ*).—A procumbent plant, producing from a tufted crown numerous leafy stems bearing large pink flowers toward their extremities; its leaves are ovate, lanceolate, sparsely covered with a short, somewhat rigid greyish pubescence. It flowers freely in August and September, when few other representatives of the genus are to be found. A native of the Caucasus,



Late-blooming Catchfly (*S. Schaftæ*).

and, although making an admirable rock plant especially valuable for its late-blooming proclivities, it answers equally well in the mixed border. It may be increased by division of the root or, still better, by seeds, which it produces very freely.

Pennsylvanian Catchfly (*S. pennsylvanica*).—A similarly dwarf plant to the preceding, of branching, semi-procumbent habit, the lower leaves of which are lanceolate, gradually tapering down to the base of a long petiole, and margined with short, somewhat rigid cilia; they have also a slightly glaucous colour; the upper leaves are few in number, linear-lanceolate, and widening towards the base, where they become almost connate; the inflorescence is loosely fasciculate, the arrangement, general appearance, and colour of the flowers reminding one a good deal of *Phlox ovata*. The calyx is almost cylindrical and viscidly pubescent; the petals are broad towards the apex, and, in place of being deeply notched, they are

almost truncate, that is, cut nearly square across, and slightly crenulated along the terminal margin; the stamens and styles are scarcely exerted; of the former, one-half are included within the flower, while the other half just protrudes beyond the narrow throat. As the name indicates, it is a native of Pennsylvania, and its rosy-pink flowers are produced in the months of June and July. This species is rarely met with in cultivation, at least I have not even seen it for the last twenty years.

The Inflated-calyx Section.

Caucasian Catchfly (*S. Zawadski*).—This English appellation I have adopted from the fact that it is sometimes met with in cultivation under the specific name of *S. caucasica*, and being a native of the Caucasus, though by no means the only one, it is an improvement on the hard Russian patronymic which I believe is its authentic descriptive title. It is a dwarf-growing plant with broadly-lanceolate, shining, light green leaves; the flower-branches are devoid of the viscid secretion so characteristic of the genus, as indeed are all the plants in this section. They acquire a height of about 9 in. The calyx is loose and inflated, with reticulated markings, and the flowers are white, deeply emarginate, and large in proportion to the size of the plant. It makes alike a good rockery or border plant, thrives well in any garden soil, and is much appreciated by slugs, who often devour the young shoots to the very core during the winter. It blooms in May and June.

Sea-side Catchfly (*S. maritima*).—This plant is supposed by some to be nothing more than a mere variety of *S. inflata*, which occurs frequently in inland hedgerows; but I hold that it is essentially dis-



Double Sea-side Catchfly (*S. maritima*, fl.-pl.)

tinct from that species, having grown them both side by side for many years without the slightest variation in the typical characters, the one (*maritima*) being essentially procumbent, the other (*inflata*), if obliged to assume that character, evidently does it against its will, being naturally erect, but dependent on adjacent support to counteract its own inherent weakness of stem. The leaves are ovate, lanceolate, and spatulate, of a decidedly glaucous hue; the stems individually are few-flowered, but are produced in such numbers that the plant becomes a trailing mass of white blossoms; the calyx is broadly inflated, and the limb of the petals is widespread and slightly bilobed; the flowers are much larger than in *S. inflata*. A native of Britain, and, though truly a sea-side plant in every sense of the word, like the Thrift or Sea Pink, it is sometimes met with alongside of our mountain rills, and under those conditions has received the title of *S. alpina*. The glaucous character is far from being so marked in the Alpine as in the sea-side plant.

S. MARITIMA ROSEA is an exceedingly pretty rose-coloured variation, with whose origin I am quite unacquainted; besides the difference in the colour of the flower it is less rambling in habit.

S. MARITIMA PLENA.—The double form, if it flower less freely than the normal type, amply compensates for it by the enormous size of individual blooms, which are extremely double. This variety makes a lovely rock plant, and ought always to be placed in such a position that its stems, borne down by the weight of blossom, may hang over the ledge of a rock; otherwise, if planted in a border, they get besprinkled with soil after every shower of rain. Producing no seeds, from the fact that all the parts of the flower are metamorphosed into petals in quite a wholesale manner, it retains its blossoms longer in perfection, and the flowering season extends over a much longer period than in the single form. It should be increased by cuttings struck in the spring in a gentle heat, care being taken to anticipate the removal of the cuttings by placing the plant itself in heat so as to start it into growth. The plant does not readily divide.

Fimbriated Catchfly (*S. fimbriata*).—This is an erect, strong-growing plant, whose flowering stems attain a height of at least 2 ft.; the leaves are broadly ovate, cordate, and sessile; the flower-stems are terminated by compact, branching cymes; the flowers are white, and their chief beauty consists in the finely cut, fimbriated edges of the petals, which have a very elegant, tassel-like appearance; the stems rise from a dense, compact root-stalk with such rapidity in early summer, that if not watched and staked in time they are liable to break over; and if they have not broken completely away in the first instance, they are still more liable to do so when raised from their prostrate position. It is a good border plant, and is a native of the Caucasus.

Flowers Erect, in Low-branching Cymes.

Cut-leaved Catchfly (*S. laciniata*).—An erect-growing plant, attaining a height of 15 in. or 18 in. The leaves are large, lanceolate, and acute, the whole plant covered with a short pubescence; the calyx is long, cylindrical, and rose-coloured; the petals are divided through the entire extent of limb into four linear segments each; the flowers are of a crimson-scarlet, varying to orange-scarlet, and, being large and laxly arranged, they have a very pretty and attractive appearance. It is scarce in cultivation owing to the fact that it does not seed freely—possibly our summers lack the intense heat and brilliancy of sunshine that it enjoys in its native habitat at the foot of Mt. Orizaba, in Mexico.

Virginian Catchfly (*S. virginica*).—This claims a very close relationship to the foregoing species, differing chiefly in its less erect habit, its broader leaves, and the presence of a rigid pubescence that gives the whole plant a roughness to the touch which the other does possess; moreover, the petals, though deeply notched in the centre, are only slightly divided, while the singularly linear divisional character is absent altogether in this species. The flowers are purplish-red in colour, and are produced in July and August. It is a native of the Southern States, and, culturally speaking, should have a damp sub-soil and full exposure to all the sunshine obtainable.

Royal Catchfly (*S. regia*).—An erect-growing plant, attaining, with its flowering stems, a height of from 2 ft. to 3 ft.; the entire plant is pubescent, the leaves lanceolate, acuminate, and scattered sparsely over the plant; the petals are very narrow, lanceolate, and undivided at the point—in this respect it is almost exceptional in the genus: the flowers are an intense scarlet, reminding one of *Lobelia fulgens*. It was discovered by Nuttall in the neighbourhood of St. Louis. I question if the true species be at present in cultivation, nor, indeed, has it been for years; there is, however, a comparatively worthless annual cultivated under that name, which belongs to a different section of the genus.

The Shrubby Section.

Shrubby Catchfly (*S. fenticosa*).—This evergreen plant acquires in its native habitat all the character and appearance of a neat and somewhat compact-growing shrub. The leaves are densely arranged, obovate, lanceolate, and distinctly acuminate, gradually narrowing down to the base, and of a leathery consistency, and of a bright and cheerful green colour; the flowers are large, of a deep rosy pink, produced on a short, three-branching cyme, and are developed in the months of May and June. Under favourable circumstances, where a too vigorous growth is not induced, it flowers all the summer through. Indigenous to Sicily and Southern Italy, where it affects the dry fissures of the rocks. For ordinary border culture it can scarcely be considered hardy, but its natural habitat may readily be imitated on the rockery; and, under such circumstances, it makes a persistent and moderately free-blooming plant. It is sometimes known under the specific title of *S. arborescens*.

The Semi-shrubby Section.

Tartarian Catchfly (*S. tatarica*) is of a semi-shrubby character, that is, it forms a thick, woody base, whence arise during summer its erect, flowering stems, which assume a spike-like appearance. The lower leaves are broadly lanceolate and smooth, almost sessile, and ciliated at the base; those of the inflorescence, which attains a height of from 2 ft. to 3 ft., become gradually narrower. The flowers are of a yellowish-white colour, and are produced on short secondary spikes in such abundance as to give a somewhat stiff contour to the entire plant. Its flowers expand fully towards night, but, unlike some other not very showy species that possess this peculiar habit, they are devoid of any perfume—I allude especially to *S. saxatilis* and *S. bupleuroides*, the fragrance of both of which is of the most delicate character.

S. CILIATA and *S. GREFFERI*, if not, as at present cultivated, identical, bear a very close relationship to each other. They both

form many branching, compact-trailing stems, covered with obovate-lanceolate leaves, which narrow rather abruptly into the petiole. In *S. ciliata* the margin of the petioles and the base of the leaves are distinctly ciliated, much more so than in the allied species; in both the upper leaves assume a linear character, and the flowers are white, produced in threes or fours, on long foot-stalks; the petals are deeply bifid. These plants are more remarkable for neatness of habit than for the abundance and beauty of their flowers.

Bolander's Catchfly (*S. Bolanderi*).—With this species, which I must class as a nondescript, I bring my enumeration to a close. My reason for giving it this title is that though it twice flowered with me raised from seeds introduced by my friend, Mr. Thompson, of Ipswich, owing to the depredation of slugs I never saw a perfect leaf. It blossomed, nevertheless, and a noble flower it produced more than 1 in. in diameter, on a stem, about 3 in. high, of a delicate pinkish-white colour, each petal being cut in the form of a trident. It would be rash with a plant so mutilated as mine was to assume that the true character was represented. I must therefore leave it to Mr. Thompson to supplement my article by his experience in this plant's general character and culture. JAMES C. NIVEN.

Botanic Garden, Hull.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Greenhouses in Winter.—Those amateurs who in a great measure attend to their own greenhouses at this season find the weather a continual source of anxiety, especially when their houses are small, as in such the heat fluctuates in accordance with the external temperature much quicker than in larger structures, which necessarily contain a greater body of air. Bright nights, with the wind from a northerly or easterly direction, are always doubtful, and often cause hesitation betwixt taking the trouble to light a fire with the objectionable consequences of making the house too warm should no frost occur, and ruining the health of the plants should the temperature sink so low as to admit frost. Both these extremes ought to be avoided if possible, especially the latter, but nevertheless should greenhouse plants happen to get frozen, much may be done to mitigate the ill effects, provided prompt action be taken. The first thing to start with is to set the fire going as quickly as possible to raise the temperature of the house before the sun comes upon the glass; and as soon as the thermometer inside indicates a degree or two above freezing, syringe the plants freely overhead with cold water, so as to wet the whole of the frozen leaves and stems, keeping the fire going briskly until the temperature rises to 40°, and maintaining it at that point till the leaves have become quite dry. So treated, many plants that at first would appear to be hopelessly injured, will suffer comparatively little; at the same time it is not advisable to submit tender plants to frost if it can be avoided.

Seed-sowing, &c.—Satisfactory results in gardening matters, more than most others, depend upon a timely commencement of operations, especially in seed-sowing, planting, cutting striking, &c.; for instance, to have a crop of any spring vegetable ready for use by a particular time, or, in other words, as early as the season will permit, in any given locality, it is indispensable that there should be no delay at the commencement of operations. Amateurs who are interested in gardening pursuits frequently express their surprise when they see the earliness and excellence of the different varieties of spring vegetables with which Covent Garden Market is supplied: I am not now alluding to the produce of the Channel Islands, the south of France, Spain, Portugal, the Azores, or other favoured climes, but to such as are grown by English market gardeners, who regulate their operations so as never to allow any delay to occur in putting in the ground seeds or plants for their early crops, further than the exigencies of the weather in different seasons influencing the soil in particular localities; in this matter amateurs would do well to imitate the practice of those market growers who are guided by the early or late nature of the soil with which they have to deal. To have early Cabbages, Cauliflowers, Potatoes, or Peas a week or two before one's neighbour is able to secure them enhances the pleasure of growing them, independently of the agreeable change they afford from the old winter productions. We very seldom experience a winter when the all but incessant rains have rendered the soil less favourable for receiving the seeds of early crops of Peas and Broad Beans than the present; and where the land is naturally heavy and adhesive, it will be advisable to wait for some time longer before putting in the seeds of these vegetables, for although so hardy as to bear any amount of frost, they will rot if the soil hold an excess of moisture.

Peas.—This season, even in light and moderately dry land, it will be advisable to take a little more precaution than usual to insure the success of the first sowing of Peas. The driest portion of ground at command should be selected, independently of its sheltered position or otherwise; this latter is of less importance than a dry bed. Instead of the usual shallow trenches being made, I should recommend the soil being drawn in ridges about 8 in. high, flat at the top, and 12 in. broad; they should be made by drawing as much of the soil from the whole surface of the bed as will form these ridges at a distance of 3½ ft. apart for such varieties as William the First or Sangster's Number One. Sow on the top of the ridges, covering with about 3 in. of any sandy, open material, such as old potting soil covered with 1 in. of ashes; or if this be not at hand, the ordinary garden soil mixed with one-third of its bulk of sifted coal ashes is a good substitute. As a precaution against mice it will be advisable to coat the Peas with red lead, or to lay under the covering of soil 1 in. of Gorse chopped fine on the top of them—where this can be had it is preferable to the red lead, as it helps to keep the seed dry until it has time to germinate. The lead is applied by simply sprinkling the Peas with water, just sufficiently moistening the surface to make the powdered lead stick when shaken over them, at the same time stirring them so as to cover the whole, and allowing them to remain for a day to dry before sowing. It is advisable to sow thicker at this early season: a quart of these early kinds will be found sufficient for a row about 18 yards in length. If the situation be at all exposed, as soon as the Peas appear above ground take as much more soil from between the rows as will form a ridge on each side of the Peas high enough to break the force of the wind. Do not tread on the land more than can be avoided, or in its present wet state much mischief will be done. Should the ground have been dug early in the autumn, as recommended in previous numbers of THE GARDEN, such crops as the above may be put in without trampling upon the soil at all by simply using a few boards about 10 in. or 12 in. wide that will reach across the bed; the little extra labour involved in their use will be amply repaid in the produce. Some will say, defer sowing until later when the ground is drier, but late sowing means late gathering; and even if a long frost should follow the seed being put in, it will be safe if the above method be followed. One of the best crops of early Peas I ever had was sown in this way the last week in the preceding year, after which a frost ensued that prevented their appearance above ground for ten weeks.

Broad Beans, where required early, should also now be sown. If the land be at all inclined to be wet, sow on the surface and cover as recommended for Peas, in which way it is evident the seed will be much better able to resist the effects of the excessive moist condition of the soil. In heavy, retentive ground, and in localities where the spring is backward, it is far preferable to defer sowing for at least a month.

Radishes.—Of these some should likewise now be sown. Choose a piece of land that slopes towards the sun. If such be not to hand, the slope should be made by moving 6 in. of the soil from the south to the opposite side of the ground. The advantage of the land lying in this way is, that the rains will run more quickly off, and the influence of the sun will be brought earlier to bear upon the seed. Level and rake the surface, sow the seed, and rake it in very slightly, or, what will be still better, just cover it with fine dry soil; then lay on about 3 in. of stable litter or straw, patting on the top a few Pea or Runner Bean sticks to keep the wind from blowing it about. If a bed of the short-topped variety and the Olive-shaped kind be sown at the same time, the latter will be ready for use by the time the former is consumed.

I have gone so far into detail in connection with the matter of sowing the above vegetables for the guidance of amateurs who have not had an opportunity of noticing how different the results are in a wet, season when means are taken to place the seeds in a position that will insure their being comparatively dry, to what takes place when they are in contact with a mass of soil from which the water has less chance of escaping.

Cauliflower.—In the south of the kingdom, on the coast, and in the more favoured localities, where Cauliflowers have a reasonable chance of standing through the winter, when planted at the foot of a south wall they will be more likely to survive the stacks of frost if boards be placed before them so as to break the force of the wind, and above all to shield them effectually from the sun when frozen, for they are frequently killed through the effects of a rapid thaw in the middle of the day being followed by the evening's returning frost. A little reflection upon this will convince any one that repetitions of such extremes are much more trying to vegetable life than is not quite hardy, than being for a time continuously frozen. It is necessary to take the same precaution in keeping the sun from young Cauliflowers. When in frames or under hand-lights a mat should be

thrown over the frame during the time that the sun is on the glass, and if a few Spruce, Yew, or any evergreen branches be placed firmly in the soil, in order to prevent the wind from disturbing them on the sunny side of the plants, they may remain until the frost is over. Lettuce, although not quite so tender as Cauliflower, should be similarly treated.

Potatoes.—Early kinds of these, from the present unusually warm weather, are commencing to sprout early; to prevent the sprouts becoming blanched and drawn up weakly, the Potatoes should be put in single layers in shallow boxes and placed where they will get a fair amount of light, and be out of the reach of frost; under a plant stage in a greenhouse, or in any empty apartment with a window in it, these necessary conditions will be secured.

Seakale and Rhubarb.—More roots should be put in to force; if the bed of leaves recommended for the purpose some time ago has been used, the heat by this time will be too much expended to induce growth and keep out frost; to remedy this surround the bed with 2 ft. of fermenting stable manure, letting it come half-way up the sides of the frame. When the first forced roots have yielded all the produce of which they are capable, if there be a deficiency of stock for making new plantations, they may be put in any spare corner and covered with ashes to keep them from frost till planting time comes.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

Jan. 8.—Cleaning Watercress stream. Sowing Sweet Peas under the protection of a hedge; also in pots; also Mustard and Cross regularly. Shifting *Nemophila* into flowering pots. Potting autumn-stuck *Heliotropes* and putting them into first Peach-house; also more Potatoes for frames. Putting in a few *Senecio* cuttings in order to get up stock; also Vine eyes, Croton, *Scatellaria*, *Petunia*, and *Calceolaria* cuttings in heat (this being the best time for spring striking). Putting *Dahlia*s into heat for cuttings. Planting standard Apple trees, Penny Royal, Fennel, Tarragon, Chives, and Lavender, and transplanting Lettuce. Putting Figs into heat, plunging them and keeping them at 58° at night. Putting into slight heat a few Wallflowers weekly; also *Kalmia latifolia*. Putting in 100 Keen's Seedling Strawberry plants weekly, and Endive once or twice a week according to the demand; also more Asparagus, throwing away first crop. Taking first Hyacinth in full flower out of heat. Putting *Salvia patens* into heat for cuttings. Placing Potatoes in loft very thinly to sprout for planting. Looking over *Pelargonium*s again and picking off damped leaves. Filling a pit with manure for cuttings. Putting leaves and manure into Cucumber-pit. Pruning late Vinery, except shoots on which Grapes are hanging. Gathering Czar Violets from pots.

Jan. 9.—Digging ground for Onions. Sowing some seeds of *Viola cornuta*, putting them into heat, and covering them with glass; also a box full of Red and White Celery; also Wood's Early Frame Radishes in pit, to come in middle of March. Finishing potting *Dendrobium nobile*, and beginning with others, using very fibrous peat. Planting Lilacs and Honeysuckle. Treading in newly planted Laurels, and watering several which were dry. Planting Lavender and Wallflowers. Putting a few Forget-me-nots in slight heat. Getting *Camellia*s to conservatory, and re-arranging it. Laying turf wherever required. Syringing late Peach trees with Tobacco-water for fly. Making leaf-bed for Carrots and Potatoes. Pruning old dwarf Apple trees.

Jan. 10.—Potting all *Odontoglossum*s except a few nearly in flower, using Sphagnum and peat; also some Sweet Briers. Putting in a good quantity of Carnation cuttings for blooming in October; also *Fuchsia*s in heat for cuttings. Planting some young Gooseberry trees. Top-dressing and potting *Cattleya*, using best peat. Giving Peach trees in pots some Standen's manures. Carting in soil (still loam) for Melons. Putting in Feverfew and *Chrysanthemum* cuttings.

Jan. 11.—Sowing seed of *Salvia patens*; also French Beans for second main Vineries. Potting Hollyhock cuttings. Putting in cuttings of *Achyrautes* and of Tree Carnations. Planting *Hypericum calycinum* under Oak trees, where they grow well. Beginning to plant Rhubarb. Shifting herbaceous *Calceolaria*s into their flowering pots. Covering up Celery with litter during frost only. Giving Maréchal Niel Roses in pots a rich top-dressing; also Oranges. Manuring Vinery and Peach-house borders with best manure, adding bones also to that of the Vinery, and covering all

with some long litter. Filling another two-light frame with soil for Carrots and Radishes. Cleaning Creepers in conservatory.

Jan. 12.—Sowing Syon House Cucumbers, and keeping them at 65 at night, 70° by day. Potting Potatoes, and placing them in Fig-house to sport. Potting off Cucumbers and Melons that were sown. Giving Roses planted-out in conservatory a top-dressing and watering. Plants ready for house decoration:—Lily of the Valley, *Narcissus*, *Heliotropes*, Hyacinths, Tulips, Callas, Sweet Briers, *Deutzias*, Scented-leaved and Scarlet *Pelargonium*s, and Mignonette.

Jan. 13.—Potting imported bulbs of *Lilium auratum*, and placing them in a cold, shady house; also some yellow *Calceolaria*s for early flowering. Pricking off seedlings of *Lobelia speciosa*. Planting *Hoteia japonica*, dividing the roots; also *Daphne Cneorum* and *Schizostylis*, and dividing them into small species. Putting in another forcing of Rhubarb. Looking over Apple and Onion stores.

Orchids.

For the next two months the Orchid grower will not have any great operations to perform, and during that time he must look carefully after the cleanliness of his plants, frequently examining each to see if the progress be satisfactory, and if not, attempting to better their condition by changing their position, &c. When an Orchid commences to suffer from bad health, a good remedy is to bring it nearer the glass, either by suspending it, or placing it on a shelf, which treatment will usually be followed by beneficial results. On account of the mild weather through the early part of December the temperatures of the cooler houses have not often been down to those recommended, but that is of little consequence: the temperatures previously given were intended as a guide and warning against excessive heat, and a few degrees above would not be injurious so long as they were caused by external warmth. The temperatures for January should be as nearly as possible those given for December. It must be borne in mind that pure air is the food and life of plants as well in winter as in summer, and that this is only to be obtained by judicious ventilation; therefore opportunities of giving air when it is clear outside should never be lost, but the ventilators should never be opened when the air in the house is considered (as in foggy weather) better than that outside.—JAMES O'BRIEN.

PLAN OF THE GARDENS AT BAGATELLE.

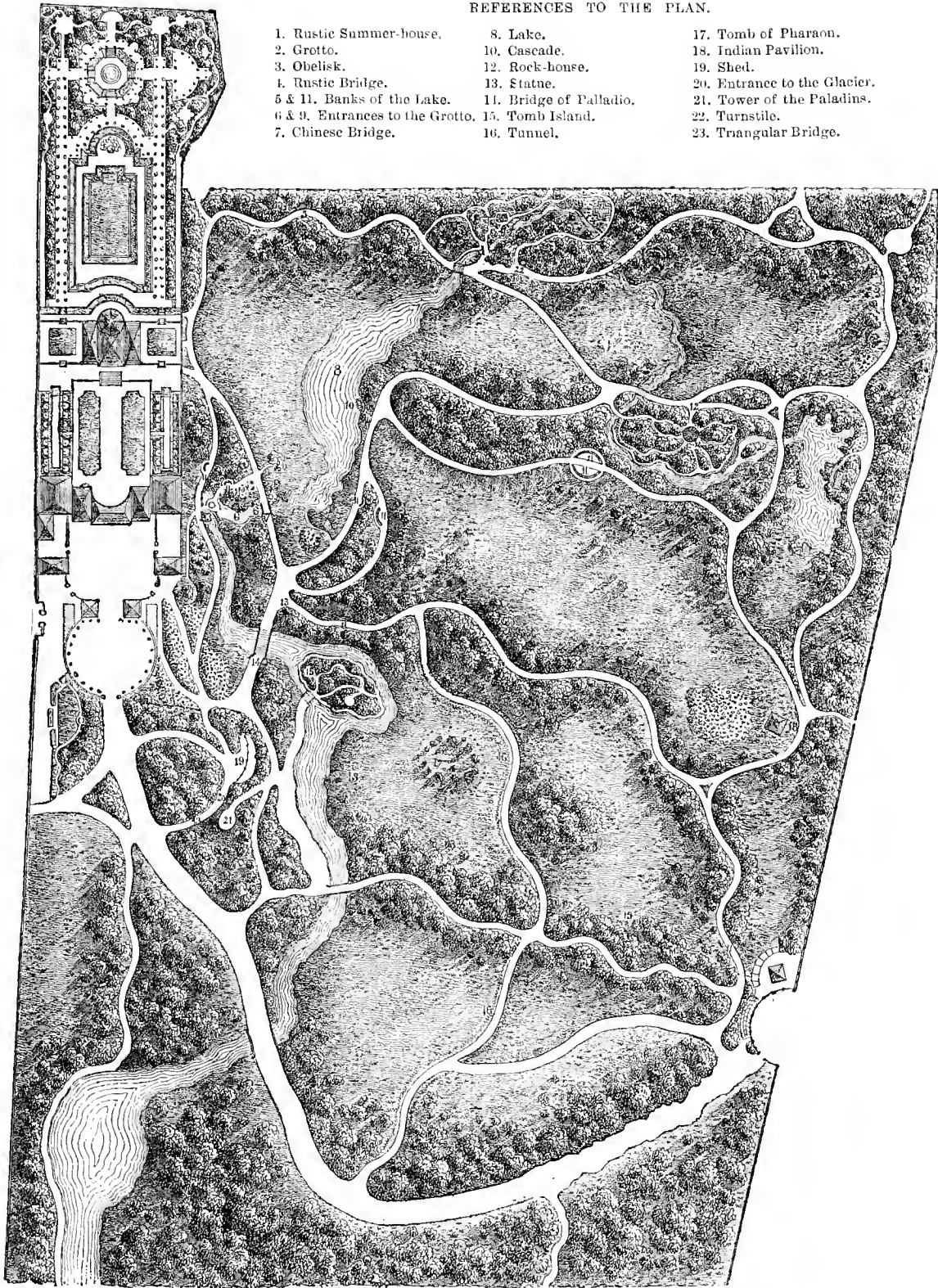
SIR RICHARD WALLACE'S garden in the Bois de Boulogne is a very distinct one, and has some of the best features of what the French call the English garden—we speak not of the portion near the house, which belongs to quite another style. In the picturesque portion of the grounds there are singularly quiet and charming scenes, and some pretty views from them into the adjacent country. An examination of the plan will show several long and quiet glades with well-planted groves and groups of trees. The views from many parts of the walks around are varied and pleasing. It may be noticed that the curvilinear walks, which are so offensive in the modern French garden, are not seen here. The walks are made to suit the grounds, whereas in the modern French garden the grounds are usually made to conform to ridiculous series of curved walks generally much more numerous than are needed. Here indeed, too, a few walks might be dispensed with, but the grounds are very extensive, and it may be seen by reference to the plan that several of the long walks pass through groves and are in them concealed. The fringes of these groves may be glanced at with advantage by such as are trying to modify the stiff and harsh outlines which garden plantations too often show. The grounds contain one of the most artistic small rock-gardens in France; it is on the margin of the water, and is very prettily clad with rock shrubs and creepers.

A Land of Cultivators.—Upwards of 5,500,000 men are reported in the census of 1870 as engaged in agriculture in the United States—373,453 in the State of New York alone, 375,107 in Illinois, 396,267 in Ohio, and between 200,000 and 300,000 each among other Northern or Middle States, in Indiana, Iowa, Kentucky, Missouri, Pennsylvania, Tennessee, and Virginia.

Frame Coverings.—What is the best and lightest protection for the glass of frames which could be easily made in an out-of-the-way district? I have hitherto used laths covered with mats and thatched with straw, but their weight after heavy rains becomes too much for the glass.—SOUTH ITALY.

REFERENCES TO THE PLAN.

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| 1. Rustic Summer-house. | 8. Lake. | 17. Tomb of Pharaon. |
| 2. Grotto. | 10. Cascade. | 18. Indian Pavilion. |
| 3. Obelisk. | 12. Rock-house. | 19. Shed. |
| 4. Rustic Bridge. | 13. Statue. | 20. Entrance to the Glacier. |
| 5 & 11. Banks of the Lake. | 14. Bridge of Palladio. | 21. Tower of the Paladins. |
| 6 & 9. Entrances to the Grotto. | 15. Tomb Island. | 22. Turnstile. |
| 7. Chinese Bridge. | 16. Tunnel. | 23. Triangular Bridge. |



PLAN OF SIR RICHARD WALLACE'S GARDEN IN THE BOIS DE BOULOGNE.

THE FRUIT GARDEN.

CULTURE OF GOOSEBERRIES AND CURRANTS.

Why take the trouble to renovate old trees—it may be asked—when young ones can be raised in their place? To which the answer is, that young trees cannot be got up in one year, or even two or three, and there are no doubt many who would be glad to know how to bring old and feeble bushes back to a state of vigour and fertility when they are not prepared to raise a fresh stock of young trees, perhaps to leave them to another tenant as soon as they are becoming useful. We have ourselves reason for being well satisfied with the results of "renovation" in very old subjects, such, perhaps, as would have been considered fit for the rubbish-heap only, but which have for many a year since yielded the most abundant crops. In fact, though young trees, two-year-olds from the nursery, were planted at the same time, the old ones still bear the main crop. A dozen years ago we found these old bushes growing as hedges round the vegetable quarters, the Gooseberries being planted in some places against espalier fruit trees, which they hid altogether. None of them, we should think, were less than thirty years of age, and most of them were probably more. They were in the last stage of feebleness, especially the Red Currants, some of which were quite beyond redemption. There were about one hundred and fifty bushes altogether, and as they had to be removed, and we could ill afford to dispense with them at the time, poor as they were, it was determined to give them another chance. With this view, a north border for the Gooseberries, and a quarter for the Currants, were trenched over in November. Afterwards holes from 6 ft. to 8 ft. apart—for the bushes were large—were taken out, and into the bottom of each was dug about a barrowful of good soil or decayed manure, and about as much was reserved for filling over the roots when planting was done. Before November was out all the bushes were taken up without any balls to their roots, for such could not be had with them, and transferred to their new quarters, mulching them well with rotten leaves. At the same time they were pruned, and had their centres opened out by the removal of many of the old limbs which had become much too crowded. The following season, about midsummer, a few of the Gooseberries withered and died, and ever since one or two have gone off in the same way annually, owing to old age, no doubt; but, with these exceptions, all have done well. None of the Black Currants died, and only one or two of the Red ones did; but the old limbs of the latter kept going off from time to time, and were replaced by young ones from the bottom, so that most of these are now composed of new branches from the old roots. All are now as vigorous looking almost as our young bushes, and appear as if they were good for any length of time. It may be stated that the bushes bore fruit, but not of large size, the summer after they were transplanted, and plentifully the year following. These remarks, it is hoped, will show that old trees may be dealt with summarily, and without fear, when it is desirable to renovate them; but, of course, it is not always needful to transplant, though that is undoubtedly the best way to give them a fresh start. Still, top-dressing the roots with fresh, rich soil or manure will invigorate them wonderfully, but it must be done liberally and continued annually for a time. The advantage of transplanting is that the trees make a fresh lot of roots altogether, and they have plenty of room to grow in the new and unoccupied soil.

Young Trees.

All the Ribes class are easily raised from cuttings, but, as nice young bushes two or three years old can be had from the nursery for a comparative trifle per hundred, it is cheaper and more convenient to buy them. As all require the same culture as regards soil and situation, &c., it is not necessary to speak of Gooseberries and Currants separately, except in the matter of pruning, which will be noticed by-and-by. Before speaking of buying, however, the preparation of the ground must first be alluded to. Any ordinary good garden soil suits the Gooseberry and Currant, but a pure friable loam is best for them, and in ground much charged with humus it is the best manure also that can be applied—if not in sufficient quantity to the soil, at least to the roots in planting. A rather moist

and deep soil is also preferable to one that is thin and dry, aphid and honeydew being the result of dryness at the root more than anything else. The ground should be prepared by trenching 2 ft. or 3 ft. deep, but manure, if given, should not be buried out of reach of the roots. The best way is to trench the ground first, and afterwards dig the manure in deeply, taking care to secure a good opening. Loam from the fields, either arable or pasture, should be given to light or old garden soils, and sand and leaf-mould and such like materials to soils of a clayey texture and, in abundance, for a tenacious soil is the worst for the Gooseberry. Bones, if they can be afforded for the purpose, are also excellent; in fact, it is hardly possible to over-manure any of our small fruits so as to injure them, for all ripen their wood with such certainty that they never fail to bear good crops unless when injured by frosts. The ground having been got in readiness, the sooner the trees are planted after the 1st of November the better, but planting may be done at any time during the winter when the weather is open and moist. Young plants, about two or three years old, and with clean, straight stems about 9 in. long, should be selected, but they should be looked over, and any suckers rubbed off that are found upon the stem. To save room the bushes may at first be planted 3 ft. apart each way, for it is assumed they are allowed a quarter to themselves; and when it becomes necessary to afford them more room, which they will require in four or five years at the most, every other row can be removed, and every other plant in the rows that are left, which will give each bush 6 ft. of space each way. In this way more varieties can be planted than otherwise could be, and when re-arrangement becomes necessary, a re-election can be made of the sorts which are found to succeed best or which are most appreciated. In planting the roots should be buried 4 in. or 5 in. at least, and about the same length of stem should be left above ground, so as to keep the branches out of the soil and prevent them rooting and throwing up suckers, which are always troublesome under such circumstances. If the plants get one good tread about the roots with the foot before the hole is quite filled up, it will keep them firmly in their places, and no stakes will be required. After planting a good thick mulching of loose rotten manure should be applied to each tree, and it should be renewed, if needful, before summer, in order to keep the roots moist and encourage growth. Other and subsequent root culture consists in forking the ground over annually between the rows and about the roots, but not too deeply, stirring the surface with the hoe to kill weeds, and, whenever practicable, in mulching the roots with short Grass or decayed manure during the summer, particularly in dry seasons. The advantages of this practice at such times can hardly be over-estimated. Regular dressings of manure, whether it be from the stable or cowhouse, or fresh loam from the field, should be forked in about the roots about once every two or three years; mulchings, if regularly given, compensate to a great extent for the want of manure.

Pruning Gooseberries.

There is only one good way of training and pruning Gooseberries of the bush form, and it is very easily understood. Beginning with the young bush from the nursery, which will, perhaps, be furnished with from three to six shoots, the operator must prune, so as to have them all pointing outwards without crossing each other, taking care to leave the centre of the bush open. Bought plants are not always methodically pruned but they should be put into shape when planted, if a portion of the branches have to be sacrificed. The shoots which are retained should be shortened back to from 6 in. to 9 in., according to their vigour, and with an eye to the symmetry of the bush. All varieties are not of the same habit, some growing erect, and others like the red Warrington, after a spreading form; but all conform to the same system of pruning. After the bushes have got fairly established, the shoots had better not be shortened back at all, but only thinned out pretty freely, always preserving the balance as evenly as possible, taking care to keep the centre open, seeing that all have space enough, and that they grow outwards. With vigorous bushes, the knife should be used freely, and a sufficiently thinned bush should look almost like a skeleton

when finished. No artificial spurs—that is, spurs formed by leaving a bud or two of the shoots which are removed—should be left; but such shoots should be cut clean off at the back. The plan of leaving the bearing shoots their entire length induces the formation of natural buds in quantity upon the old wood; whereas spur-pruning only promotes the growth of spray, which chokes the bush up in a single season.

Red Currants.

These should be kept open in the centre like Gooseberry bushes, and shaped in the same manner; but with the Currant it is preferable to shorten the terminal shoots back at pruning time to from 6 in. to 9 in. according to their vigour. The side-shoots too, or laterals, should not be entirely cut away as in the Gooseberry, but cut back to $\frac{1}{2}$ in. to $\frac{1}{4}$ in. from their base, to induce spurs or buds. The Red Currant is not so apt to produce spray as the Gooseberry. Trained in this way, the limbs of the bushes become eventually not unlike Vine-rods—spur-pruned—and their treatment is much the same, the young shoots which grow from the spurs only needing to be shortened back annually, and a portion of the leader left. It is well, however, to leave some of the young shoots which push from the bottom, to bring them on to take the place of the older ones, or such as may die.

Black Currants.

This sort differs from the Red Currant and from the Gooseberry in its habit of growth, and must be treated differently. The fruit is borne in greatest quantity upon the previous year's wood, and pruning must be conducted with a view to the preservation of the young growth, which should not be shortened at all. In fact, Black Currant bushes should only be thinned, and have their centres kept tolerably open. Long and old branches that are getting bare below should also be removed, and others brought up from the bottom to fill their places. No spurring or shortening is necessary, but shoots that have to be removed must be cut away altogether, and all others left as they are.

Bud Destroyers of the Gooseberry and Currant.

Bullfinches and others of the finch tribe are the most destructive in this respect, and the bullfinch is by far the worst. A couple of bullfinches will destroy all the buds on the bushes, and consequently the prospect of a crop, in a cottager's garden, in two or three days, probably before they are observed to be about the place, and a brood or two will ruin all the quarters in a large kitchen garden, if the bushes be not netted or protected in some way. They begin their attacks generally when the buds begin to push, and invariably, so far as we have observed, they take the bushes before them in the most methodical manner, always beginning at those nearest to their place of shelter, and advancing as they exhaust the supply. It does not pay to net the trees against the birds alone; but where netting is regularly practised to protect the fruit, the nets should be put on early in the winter, supported in a substantial way, and left on till the fruit is gathered, or all the year round. We have tried this plan, but the expense for nets was great, as they soon rot if left out the greater part of the year. The cheapest plan is to engine or syringe the trees well with water, in which soot, lime, and particularly red lead has been stirred. If the red lead is sufficient just to colour the bushes, it will stop the birds, but the dose must be repeated two or three times during the winter and spring.

Gooseberry Caterpillar.

This is the only other serious plague the cultivator has to contend with; but it can be effectually overcome by the application of hellebore powder applied either by hand dusting or with the syringe after mixing it with water. The last plan is by far the most effective and convenient.—“Field.”

Cure for the Phylloxera.—The most interesting paper read at the last fortnightly meeting of the Société Centrale d'Horticulture de France on the 14th ult. was that by Mousieur Sabatié, of Libourn, a rather extensive Vine grower in the neighbourhood of Bordeaux, who has invented a mailed glove composed of interlacing rings of thin galvanized iron with which to rub carefully the bark of each Vine in

Vineyards affected with Phylloxera at a time when the eggs have been freshly deposited in the interstices, an operation which he finds effectively destroyed the eggs; out of a Vineyard of 70 acres experimented on by him during last season, forty acres on which he was able to use his gloves enjoyed almost complete immunity from this pest, while the remaining thirty were almost destroyed. These gloves at present cost from 13 to 14 francs each, but in a little time when they come into general demand M. Sabatié hopes to be able to reduce their price to 12 francs or even lower. Such gloves are also admirably adapted for removing the Moss from Apple trees, and are provided with a chain and hook confuting them at the wrist so as to suit them almost to any sized hand.—W. E. G.

Want of Colour in Mrs. Pince's Black Muscat.—I have grown this Grape now for six years, and I must confess that I have been unable some seasons to get it in good condition. The flavour is excellent, and it is an abundant cropper, but the difficulty consists in getting that beautiful bloom on the bunches which is so desirable in all black Grapes. I have one Vine planted in a mixed house at the warmest end; this house is assisted with fire-heat about the beginning of March, and the Grapes on this Vine always colour the best, which leads me to think that Mrs. Pince requires a longer season to ripen than is generally allowed it; for, being a late Grape, it is generally kept back as long as possible, and only assisted with fire-heat after the Vines start; and if the autumn prove dull and unfavourable, so that the bunches are not finished off before September, very little bloom can be put on after that. I have likewise two late houses planted chiefly with a few Vines of Lady Downes, which have always finished off to perfection, but Mrs. Pince has not satisfied me in colour in those late houses; three parts of the berry colour very fairly, but the other part remains a dull red. There are a few who speak favourably of this Vine, and some who pronounce it the best late Grape in cultivation; but a far greater number complain of its besetting fault—bad colour. Perhaps there are two varieties, a fact which I think has been mentioned before. I intend to commence earlier this season, and see what effect that will have, for Mrs. Pince is a very superior Grape to Lady Downes, as far as flavour is concerned; but it is evident that it will not finish off with the same treatment as Lady Downes. A few hints from any of your readers who have succeeded, or failed, will perhaps enable one to arrive at the proper treatment which this otherwise excellent Grape requires in order to give it the same finish as its companion, Lady Downes.—J. A. H. G.

Experiments in Keeping Apples.—It is worth while to try experiments now in keeping Apples, as they are easily performed, and the results may prove valuable. We have found by frequently repeated trials, that Apples stored in an outhouse opening north till nearly the first of December will keep for several weeks, and sometimes even months, longer than if taken at once to the cellar as soon as picked from the trees. They are kept cool through the last half of autumn. Much may be gained, as well as learned, by keeping one or more thermometers in the fruit room, and swinging the windows open wide enough to bring the temperature nearly down to freezing at all times. At the same time, the exclusion of air-currents is an important assistance. One hundred Apples, wrapped merely in tissue paper, kept longer for this reason than a hundred exposed; hence, also, the great advantage of packing in dry sawdust or in pulverized plaster. The temperature is thus kept more uniform, and the fruit may be placed in a colder room without danger of freezing; wrapping each specimen in this paper first would be useful. Where dry sawdust is easily obtained it is well worth trying, either in open barrels or boxes. It is the exclusion of air that keeps Apples better in barrels, and this, according to the “Country Gentleman,” would be one of the best modes if the first decaying specimens could be seen and removed before tainting all the rest.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Coe's Late Red Plum.—This, according to the “Country Gentleman,” is the best very late Plum, when it ripens. The tree is very hardy, and profusely productive, and the fruit succeeds well in a large number of seasons. Where early autumn frosts occur, it would be of no value. It ripens early in October, and continues good for some weeks.

Good Pears.—Will you kindly favour me with the names of a few good Pears for planting on walls and in open quarters?—C. [The following kinds of Pears deserve especial notice by those about to plant in open quarters or on walls. They are all well-known kinds, and will invariably give satisfaction in almost any soil or situation. Those marked with an asterisk do best on a wall:—Citron des Carmes, Baronne de Mello, Beurré Diel, *Beurré Brown, *Beurré Sterckmans, Beurré d'Amanlis, Beurré Superfin, *Bergamotte d'Espéran, *Duchesse d'Angouleme, *Easter Beurré, Flemish Beauty, *Glor' Morceau, Jargonelle, Knight's Monarch, Louise Bonne of Jersey, *Marie Louise, Thompson's, Urbaniste, Passe Colmar, Williams' Bon Chrétien, and *Winter Nellis.]

BERRY-BEARING PLANTS.

THE extreme scarcity of the berries of the Holly this winter has been very generally felt by all whose duty or business it is to furnish Christmas decorative material. Whilst it is impossible to excel the Holly when in good berry for this particular use, it is evident that some substitute is worth cultivation to supply the demand for berries should the Holly crop prove a failure. The present season has found the Cotoneaster superbly fruited, its large berries glowing on the walls like masses of pearls; indeed, this plant seldom fails in the production of a rich and abundant crop of berries. If it were grown largely for the purpose of furnishing a supply of its rich red clusters at Christmas, it is probable that a ready market would be found for them, and the cutting of these would probably facilitate the production of a crop in each successive season. It is worthy of consideration whether this plant might not be worked upon clean young stocks of the Hawthorn, and so induced to develop neat, standard, berried heads. How beautiful these would be for house or domestic decoration, besides remaining fresh and vigorous for a long time! Some of the freest berry-bearing Hollies might be also worked as standards for a similar purpose, and no doubt would prove a useful addition to floral decoration. Some of the Silver and Golden-leaved kinds would be effective even if devoid of fruit, but it is notorious that the bright scarlet berries considerably enhance the value of plants or branches. We have already heard of a successful attempt to work the Mistletoe upon the Hawthorn stock, and so produce neat berried heads. It is needless to say that such plants, if largely and successfully grown for market, would meet with plenty of eager purchasers. The Solanum also furnishes one of the most charming families of winter-berried plants, all of which can be grown with great ease, and, unlike others previously mentioned, can be raised from seed in great abundance. As bush plants, the varied forms known as Weatherill's Hybrids cannot be excelled, as these develop berries in rich profusion, and, if well grown, are equally well covered with foliage. The conical-shaped-berried kind is specially pleasing and prolific, and worthy an extended cultivation. Best of all as a standard plant is the pseudo-capsicum variety, as it grows in that form naturally and produces handsome beads on stems from 15 in. to 20 in. in height. When full of berries and placed here and there amidst dwarf plants, the effect produced is at once pleasing and varied. With such a wealth of berry-bearing plants as now exist there need be no future absolute dependence on the uncertain Holly for a Christmas supply. A.

Insect Fertilization.—Mr. Boulger states (see p. 515, Vol. X.), that I have confused pollenization with fertilization. In another place I have been told that I should use the word impregnation for fertilization, but fertilization best expresses what most of us mean; at any rate, I am quite sure that the self-pollinated flowers to which I refer are not only abundant seeders, but that the seeds are abundantly fertile. Mr. Boulger tells us that "Wistaria has been shown by Messrs. Torrey and Gray ("Flora of North America," i., 291), to be mostly infertile, except as regards its cleistogamic blossoms." Torrey and Gray do not say so. I doubt much whether Wistaria ever produces such flowers. Our species—*Wistaria frutescens*—sometimes seeds in great profusion and sometimes not at all, though visited by insects freely in both cases. If I were to use the language which your correspondent quotes from Dr. Gray, I might say, "It is quite possible that the other cases brought forward by him may bear a different interpretation," but I regard such sweeping inferences, to say the least of them, as ungenerous. As, however, Dr. Gray must object to hasty and erroneous quotations, as well as to hasty generalization and imperfect observation, he will probably himself correct this strange warping of his own work. The only cleistogamous Papilionid native of the United States that I remember as I write is *Amphicarpæa monoica*, but this will surely not be quoted in the interest of insect fertilization. If colour be for the purpose of attracting insects, I suppose the rosy-white flowers are visited. I do not remember clearly how this is, but I do know that the only fruit I ever saw came from the cleistogamous flowers.—THOMAS MEEHAN, Germantown, Philadelphia.

Early Cinerarias.—What is a good time to sow Cineraria seed in order that the plants may be in flower about the middle of December?—J. E.

DWARF SCARLET BEGONIA.

(B. DAVIS).

THIS, although one of the smallest of all the Peruvian Begonias, is undoubtedly one of the most floriferous and brilliant, and as such deserves culture wherever Begonias of the half-hardy, tuberous-rooted section are grown for decorative purposes. The obliquely-cordate leaves grow in tufts near the surface of the soil, and are hairy on both surfaces. The flowers are borne three together on graceful radical scapes, which vary from 3 in. to 8 in. in height, the male flowers being about 2 in. in diameter, and of the most vivid orange-scarlet colour. The female flowers are rather smaller, but equally dazzling in colour. The specific name appears to have been given to this plant in compliment to Mr. Davis, one of the most successful of Messrs. Veitch's travellers in Peru and other parts of South America; but the plant must not be confounded with a variety of the *B. insignis* group, which is, or was, grown at Kew and elsewhere under the same name. It is not yet distributed, but when obtainable, it will soon become popular, being one of the most distinct and brilliant of all decorative plants for pot-culture, and one whose bright colouring will doubtless soon be



Begonia Davisii.

infused by the hybridist into the rosy and crimson varieties and sub-varieties of the *B. Veitchii-boliviana* group. The plant was first exhibited and received a first-class certificate at the Royal Horticultural Society's meeting held on August 2 of the present year. B.

Standard Roses in Pots.—Where there is a demand for cut Roses early in the spring, and these have to be brought forward in Vineries or other fruit houses, standard plants will generally be found the most useful shape, as, owing to their heads standing out in the full light, both flowers and foliage during short days come stronger than on dwarfs. They are also most suitable for conservatory decoration, as they can be placed in positions in borders amongst permanent plants, where their naked stems can be hidden, and thus be rendered more effective than small dwarf plants. Standard Roses may be kept in health for many years in 8-in. or 10-in. pots, by annually shaking them out in autumn, shortening their roots a little, and re-potting them in clean pots of the same size. Good loam, well enriched with thoroughly decomposed manure, is the most suitable compost in which to pot them, and if the loam be very adhesive, a liberal addition of road sand will be a great improvement.—W. S.

Alsophila plumosa.—This new Californian Fern is now in good condition at the Victoria Nursery, Holloway. It does not appear to grow so robustly as some other kinds, but its foliage is beautifully light and elegant, and it will doubtless prove to be a valuable addition to our list of Tree Ferns.—M.

USEFUL WINTER-FLOWERING STOVE PLANTS.

Now that Chrysanthemums in cool houses are all but over, there may still be had at this dull season, where the convenience of a stove exists, many bright and cheerful plants upon which to look, if a little tact and forethought have been brought to bear on their cultivation during the past summer. Nor need we look for new things wherewith to make a display; on the contrary, many of the best have long been occupants of our stoves, and are difficult to beat as far as general decorative effect is concerned. For winter-flowering subjects I prefer small pots, and give liquid manure as a compensation for want of root-room. *Poinsettia pulcherrima* has often grand heads of bright floral bracts that measure 1 ft. across, and that will keep in good condition for six weeks or two months, according to temperature. This is a plant of easy culture, and one which takes up no valuable space in the stove till autumn, and then it is all the better for being elevated close to the glass. My plan is after flowering to dry the plants off by placing them on their sides under the stage of the early Vinery, near where the hot-water pipes enter. After they become quite dry and the place gets too warm for them, they are laid under the stage of a small house used for bedding and other soft-wooded plants, till nearly midsummer, when they are cut back, shaken out, and reotted into the same sized pots (32's), using a compost of two-thirds good turfy loam and one-third well-rotted manure, with a dash of sand. They are then placed on the stage of the same house close to the glass, and when sufficiently established we generally put them out in a two-light frame; as they grow we raise the frame on bricks if required, which has the effect of hardening their wood and keeping them short-jointed. They should never be allowed to flag from want of water. If large bushy plants are needed they must be started earlier and the points may be stopped once. These, if inserted singly in small pots as cuttings, and plunged in bottom-heat, will make capital little plants. I prefer them to eyes for this purpose. I should add that the plants should not be left out after the nights get cold, or they will lose much of their foliage. Another well-known plant is *Euphorbia jacquiniiflora*, whose light and elegant sprays of scarlet flowers hanging over other plants materially enhance the general effect without injuring anything beneath them. As these go out of bloom they may be cut back a little, and kept drier than usual for a time till they commence breaking freely. When the young shoots are long enough they may be taken off with a heel and inserted in small pots, placing three in each, and then plunged in a brisk bottom-heat; cuttings of this and the preceding should be allowed to dry a little before insertion. They will require careful attention for a few weeks as regards moisture, or they are apt to damp off. When sufficiently rooted they are shifted just as they are into 32-sized pots, in which they flower. The soil should be free and open and the pots well drained. As the plants become fairly established I place them in a cooler house, keeping them close to the glass, where they get plenty of light and air; they are stopped once or twice during the summer. Young plants of this are always preferred. *Plumbago rosea* is another useful winter plant, for, though its individual flowers are rather short-lived, it produces large numbers of them in succession. Then we have several Gesneras, the old *G. zebрина* being a very good one for flowering through the dullest part of the winter if started in autumn. These, interspersed with other plants, have a lively and striking effect, but their beautiful foliage is better seen when in a more isolated position. I have used them for table decoration, their fine leaves being very attractive under artificial light. These plants delight in warmth and plenty of light, and thrive best in peaty soil with the addition of a little well-rotted cow manure, finely-broken charcoal, and a liberal admixture of silver sand. The *Amaryllis*, too, is a first-rate plant for winter work, its large Lily-like blooms being always admired. This might be grown in quantity, as it is a very accommodating plant. A 6-in. pot will answer for one of the smaller-bulbed kinds for several years with an annual top-dressing, and such plants sometimes yield as many as three spikes each. They like a rich, tenacious soil. Where sufficient numbers of plants exist, a few may be introduced to the stove or forcing-house about once a fortnight, starting about the beginning of November. Care should be taken that the plants started earliest one year

are the first to begin with the next, for in course of time, if this be attended to, they will acquire the habit of starting into growth with very little exciting about the time when they are wanted. *Thysacanthus rutilans* is a valuable winter-blooming plant, the crimson, tube-shaped flowers on its long pendent racemes looking at a distance as if suspended on very thin cords. Large plants of this can be grown from cuttings in one season; but, being a strong-rooting subject, it will require more pot-room than many others, though a good-sized plant of it may be grown in an 8-in. pot. It will do in a cooler house during the warmest months, but must not be left out too long, or it will lose most of its leaves. In room decoration, if elevated in the centre of a group under artificial light, associated with white *Epacris*, white *Primulas*, and the like, it is sure to be appreciated. *Centropogon luccanus* and *Eranthemum pulchellum* are both useful old plants that will succeed under similar treatment, the *Eranthemum* being especially welcome on account of its bright blue flowers. *Libonia floribunda*, though not generally treated as a stove plant, if placed in heat now will quickly open large numbers of pretty little scarlet and yellow *Cuphea*-like flowers, which are more valuable now than later in the season; it will make bushy little plants in one year from cuttings. Then there are several good old winter-flowering *Begonias* well worth more attention than they often get; these will generally be found to flower better when grown through the summer, with more light and air than the regular occupants of the stove receive; this treatment renders them hard and short-jointed, and consequently more floriferous. These are a few of the best among winter-blooming plants, and I venture to say that with some of each tastefully arranged among fine-foliaged plants and Ferns, with the addition of some light-flowered *Bouvardias*, yellow *Ocuidiums*, and other late-blooming *Oreohids*, such as the several *Calanthes*, *Lycaste Skinneri*, *Lælia autumnalis* and *anceps*, *Dendrobium moniliforme* and *nobile*, *Odontoglossum Alexandre*, &c., fringed with a few small *Epiphyllums* and small hanging plants of *Panicum variegatum*, *Lycopodiums*, &c., we might have a group that could not be easily surpassed at a more favourable season of the year. T. J. CRANE.

The Species of *Anigosanthus*, a genus of Australian plants of much beauty and interest, appears to be greatly neglected by plant growers. They are great favourites of mine, and I have tried various ways of cultivating them. They do fairly well under cool greenhouse treatment, with plenty of water, during the growing season. They do better, however, if placed out-of-doors during the warm weather in summer, setting the pots in a pan of water to the depth of about 1 in. or a little more. The water pan should be put in a sheltered but open situation, and the plants should be removed back to the greenhouse before the autumn frosts commence. Under this treatment they flower freely and keep healthy. I believe, however, that the species of *Anigosanthus* are much more hardy than cultivators generally expect, as the following experience will show:—During the winter of 1875-76 a plant of *Anigosanthus Manglesi* was left in its water-pan and overlooked; a hard frost set in, so that the air temperature was 22° Fahr., and the water in the pan was frozen more than $\frac{1}{2}$ in. in thickness. The plant then came under notice, and was at once removed to a cold frame and kept from further frost. This hard treatment seemed to arrest for a time all the energies of the plant, but it gradually came round, and is still living, and I think will make a strong plant in another year.—W. W. SAUNDERS, *Raystead, Worthing*.

Roses for a North Wall.—A correspondent (see p. 564, Vol. X.) inquires for a good red Rose for a north wall. My house faces the north, and I grow successfully against a trellis on it *Baronne Haussmann*, dark red shaded; *General Jacqueminot*, rich velvety-red; *Vicomte Vigier*, crimson; *Prince de Portia*, rich velvety-red; and Knight's new climber *Princess Louise Victoria*, a delicate blush with a pink centre. They are all Hybrid Perpetuals, and grow 10 ft. in height; they bloom freely in summer and autumn, and the quality of the flowers is good. If I had to plant over again, I could not improve the selection. The border is well manured, and manure-water is freely administered during the hot months.—H. T., *Bedale*.

A Lamp-heated Hot-water Apparatus.—Messrs. Dietz & Co. have invented a new circulating hot water stove which is likely to prove useful to amateurs who have small houses or frames to warm. It is simple in construction, (as will be seen by a representation of it in our advertising columns) easily lighted, cheap, and durable. It is heated

by a paraffin lamp, and is so constructed that a chimney can be easily placed on the top in order to carry off noxious gases arising from the oil. A pint of oil will last for about twenty-four hours, and the cotton only wants renewing once in two or three months. It will, no doubt, be found useful by those who require a cheap and ready means of excluding frost from small conservatories, or for expelling damp from rooms.—S.

New Gas-heating Ventilating and Lighting Apparatus.

—Messrs. Henderson & Son have now at work in their nursery, at Pine Apple Place, a newly-invented gas stove which promises fairly to become a great boon to people who possess small greenhouses, conservatories, &c., in which the ordinary modes of heating cannot be practically applied. The chief points in favour of this stove are its rapid heating properties, its simplicity of construction, and its elegant appearance. It is easily moved from place to place, and being supplied with two burners each furnished with a glass globe, it affords a good light. It moreover purifies the air of the room or house in which it is used, and does not injure even the most delicate flower though placed close to it. It is the best gas-heating apparatus which we have yet seen.

The Floods and the Trees at Fulham Palace.—The overflow of the Thames during the last few days has destroyed some of the trees in the grounds at Fulham Palace. On New Year's Day an Acacia, 50 ft. in height and with a girth of 12 ft., fell with a crash on the roof of one of the buildings at the Palace and did considerable damage; happily the rooms were unoccupied at the time, or the consequences might have been serious. Large Elms, too, growing in the immediate vicinity have sunk under their own weight, owing to the saturation to which the soil has been subjected, and ultimately fell to the ground, and many more will in all probability follow, unless a change in the weather shall quickly take place. The Acacia destroyed was one of the best trees of the kind in the country.

—At Southampton the tidal floods have done much damage, especially in the grounds belonging to Mr. Kingsbury, of the Bevois Valley Nurseries, on the south-eastern side of the town, where many acres have been submerged. The water forced its way into all the greenhouses and hothouses, and did great damage to valuable specimen plants and thousands of young seedlings in pots.

—The damage caused by the snowstorm of the 23rd and 24th ult. is very great in this locality; branches of trees 1 ft. in diameter were lopped off, Rose arches were broken down, and evergreen trees and shrubs levelled with the ground.—R. B. FULLER, *Fitzroy Park, Highgate.*

SCOTTISH SEED AND NURSERY TRADE ASSOCIATION.

At the annual meeting of this Association, which took place the other day in Edinburgh, the President in the chair, there was a good attendance of seed merchants and nurserymen. During the year it was stated that no case of adulteration had been formally brought before the Association, but the acting committee had anxiously considered the propriety of approaching the Government as to the amendment of the present Seed Adulteration Act. The Secretary stated that the existing Seed Adulteration Act was inoperative, in consequence of a public prosecutor having been omitted to be provided for. He had, at the suggestion of the committee, prepared the heads of a Bill which assimilated the provisions of the existing Act to the provisions of the Food and Drugs Adulteration Act of 1875. By this Bill it was provided that all parties adulterating seeds, either by killing the vitality of seeds or dyeing them and mixing these with other seed, should be fined in a sum not exceeding £50, and that the second offence should be deemed a misdemeanour to be punished with imprisonment. In the course of a conversation which ensued it was suggested that a memorial should be prepared on the subject for presentation to the Lord Advocate, and that a deputation should be appointed to wait on his lordship and urge his attention to the matter, with the object of endeavouring to get the Government to take up the question and pass a really effective Act. Mr. David Syme said that the mere fact of the Association desiring to take the steps indicated would be a strong deterrent to unscrupulous people offering adulterated seeds for sale. He moved that it be remitted to the acting committee to take what steps they saw fit for approaching the Lord Advocate in order to get the mind of the Government upon the question of a new effectual Bill. Mr. Hunter thought that if the Government would not take the matter up, the Association, as an association, might take up a case of adulteration, and try it under the existing Act. In this manner it might be demonstrated whether the Act was workable or not. Mr. Muir Crawford, Leith, said that he had made inquiry in Germany, France, Belgium, and other continental countries from which seed was brought to this country, and in neither of them was there a special law against adulteration, so that seed merchants here were pretty much at the mercy of foreign adulterators. However, adulteration in London and other parts of England was more to be feared.—Mr. James Welsh, Edinburgh, pointed out that if the Association took up a case and tried it, and failed, owing either to the unworkable nature of the Act or other causes, they would render themselves liable to an action for heavy damages.—The Chairman

said that he had had a conversation on the subject with a member of the Government, who stated that he would do all in his power to get the Government to make a representation to foreign Governments on the subject of seed adulteration.—Mr. Syme's motion was eventually agreed to, and it was determined that the Acting Committee should seek an interview with the Lord Advocate. The question of tree seeds which would not germinate being sold to members was also under discussion; and it was further remitted to the Acting Committee to consider the propriety of co-operating with the leading London seed merchants in defending vexatious and needless action by customers as to the value of seeds represented by crops. Officers for the ensuing year were then appointed, and on the motion of Mr. Sadler, Glasgow, it was remitted to the Acting Committee to consider the propriety of drawing up, in conjunction with the law agent of the Association, a non-guarantee clause for seeds to be adopted by the members of the Society.

THE KYRLE SOCIETY.

To the Editor of THE GARDEN.

SIR,—I am desired by the Committee of "The Kyrle Society for Bringing Beauty Home to the People" to thank you for the interest you have taken in their Society as well as for your kind permission to make known some of its objects through your columns, of which they gladly avail themselves. The Society has been set on foot with the view of bringing the refining and cheering influences of natural and artistic beauty into the homes and neighbourhood of the poor in our large towns. It is proposed to decorate workmen's clubs, mission rooms, and other rooms used for social purposes; to give oratorios and concerts in poor neighbourhoods; above all, to lay out as gardens any available strips of waste ground; and to encourage the cultivation of plants not only in windows, but in areas and backyards. For this purpose donations of money will be gladly received by the secretary; also gifts of roots, seeds, and bulbs, and of cut flowers for distribution. More valuable even than donations will be the personal help of those who have any experience in town gardening in laying out to the best advantage such bits of ground as are at the disposal of the Society. Any persons feeling sympathetically with the objects of the Society may become members, and their names will be enrolled if sent to the secretary. No subscription or donation required. A short report is printed every quarter, giving an account of what has been done during the past three months, and of what is projected; also of what form of help is most needed. All members desirous of receiving these reports may have them sent on payment of 1s. a year. M. PICKTON, Hon. Sec.

14, Nottingham Place, W.

P.S.—I should like to add that small city gardens have already been made in Lambeth, Marylebone, and Whitechapel. The latter, situated in a miserable court in that district, was liberally supplied with bedding-out plants in the summer by Messrs. Veitch & Sons, King's Road, Chelsea, who have also most kindly sent us Evergreens and Creepers for it this autumn, as well as a large quantity of window plants for distribution among the poor of the neighbourhood.

NOTES AND QUESTIONS—VARIOUS.

The White Drooping Broom (*Cytisus filipes*).—Few plants are more graceful and useful for conservatory decoration than this when grafted on clean straight stems of the common *Laburnum*, so as to form standards. In this way they grow very freely, and when their long, thread-like branches are thickly studded with pure white, Pea-shaped flowers, they are both effective and pretty.—M.

Angræcum sesquipedale.—A fine specimen of this in the Royal Exotic Nursery at Chelsea is now furnished with from seven to ten unusually large, pure white blossoms, and there are yet several more to open. The flowers, which have the good property of lasting in good condition for a considerable length of time, are highly desirable at this season of the year, when white flowers are especially valuable.—S.

Odontoglossum Andersonianum.—This rare Orchid is now in flower in the Pine-apple Nursery. Its blooms resemble those of *Odontoglossum cirrhosum* in form and size, but the spots and markings, instead of being of a purplish-blue, are of a reddish-brown colour. It is, however, a very distinct and valuable variety, and when more plentiful will doubtless be found in most collections of Orchids.—S.

Fumigation.—I have done this for many years as follows:—I take some large sheets of brown paper, wet them in a solution of sulphate and water (1 oz. to a gallon of water), and when dry I cut them in squares from 12 in. to 18 in.; I then spread as much as is required of the dry Tobacco evenly over the paper, then I roll it up tying it loosely in the middle, put it in a small flower pot, light both ends, and leave it to do its work.—O., *Cirencester*.

Sizes of Conifers in Cornwall.—In my remarks (see p. 102, Vol. X.) I inadvertently omitted to mention three trees, viz., *Abies Brunoniiana*, 29 ft. in height, planted in 1856, *A. canadensis*, 31 ft. in height, and *Pinus patula*, 26 ft. in height, planted in 1857. The last is the handsomest as well as the most graceful of all the *Pinuses* we have, but it requires a sheltered place and some slight protection in very severe winters. I would recommend the *Abies canadensis* or Hemlock Spruce, and the *A. Brunoniiana* to those about to plant, and who do not require large-growing trees. *A. canadensis* is with us a very handsome plant.—W. NANSICAWEN, *Culdroick, Menheniot, Cornwall*.

Soil for Ferns (see p. 565, Vol. X.).—Many Ferns will doubtless grow in peat, but the majority of them produce fine fronds in loam, to which has been added leaf-mould and sand. We have a fine plant of *Pteris tricolor*, which for years, when potted in light peat, scarcely made any progress, but during the last two seasons, when it has been in nothing but loam, leaf-mould, and sand, it has produced a splendid head of richly-colored fronds. Although by no means a new plant good specimens of this Fern are comparatively rare.—J. GROOM, *Henham*.

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SATURDAY, JANUARY 13, 1877.

[Vol. XI.]

"This is an art
Which does mend Nature; change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FREE-BEARING PEARS.

It is generally conceded that no other fruit varies so greatly as the Pear does in different aspects and soils, and hence the conflicting testimony that is frequently borne as to the merits or demerits of the same variety when grown in different localities or under different conditions as to soil and aspect, more especially as regards the latter. Were it necessary, I could name a dozen kinds that are, when grown on walls, so totally different from the same kinds grown on standards in the same garden, that none but those unusually well versed in fruit lore would ever take them to be identical; taking, however, all the above points into consideration, I may safely assert that the list given below will be found to contain the cream of all the cultivated varieties, *i.e.*, as far as constant and free-bearing qualities and hardiness of constitution are concerned; and what is of no less moment, good keeping qualities proportionately with their season of ripening. The principle on which I have made my selection of varieties is this:—I have supposed myself compelled to grow only a limited number of kinds, and yet with a minimum of sorts, I am expected to have a maximum supply of Pears, both as to quantity and length of season. Further, I have so arranged my selection that each kind, as in order named, would only be grown by me, supposing I was restricted to one, two, three, or four varieties as the case might be. First on my list I place Winter Nelis, for this I look upon as the Pear of Pears, and therefore if restricted to grow but one variety, this would be that one, and that for several reasons. First, because it is a sure bearer, either on the Quince, or Pear stock, as a standard, an espalier, or on walls, and it is certainly richly deserving of the latter position; secondly, because it ripens more gradually than any other Pear I know, and keeps for a longer season after being fully ripe.—I have known it in continuous use from the middle of October to the end of February; and thirdly, it is of the finest possible quality, being of a rich vinous flavour, with an aroma that never cloy on the palate. My next sort is Bergamotte Espéren, a late Pear, which is not sufficiently well known, or it would be more cultivated; it possesses all the good qualities of Winter Nelis, and to some people, the additional one of having a rich aromatic flavour. Supposing that one had plenty of trees of these two varieties, there would be no difficulty in obtaining a supply of first-class fruit from October to April. Having named two kinds that will assure a long season of dessert fruit, and both sorts rather under average as to size, I next place Duchesse d'Angoulême, in which we get size and quality combined. Moreover, it comes into use frequently by the end of September, and so will lengthen the season considerably, and though it is not usually accepted as a sure bearer, I have but once in ten years known it to fail. Another large variety, and a still earlier ripening kind, though it keeps for some time after it is ripe, is the Bauré d'Amanlis. All points considered, I place this at the head of the list of all early Pears, and for this reason, that it rarely manifests that tendency to premature decay, which such kinds as Jargonelle, Citron des Carmes, Belle de Bruxelles, Williams' Bon Chrétien, and several other early varieties do, most of which are excellent, apart from the short period they remain fit for table. My next variety is Thompson's, perhaps the most delicious, and certainly to my mind the most refreshing, Pear grown; it has none but excellent qualities, and is an immense bearer when grown on the Pear stock. It does very indifferently on the Quince, though, if anything, the fruit is still more excellent when grown on that stock. I next place Marie Louise, a variety too well known to need any comment; and the only reason for its not being placed higher in the list is, that it is not always a certain bearer, unless confined to walls, a position it well merits. Bauré Superfin is a splendid fruit of good size and flavour, and continues in use for about six weeks during September

and October, and sometimes November. My next is Josephine de Malines, a peculiar but pleasant-flavoured fruit, a certain bearer, and one which comes into use at a time when fruit is scarce, *viz.*, from February to April. Next is Glou Moreeau, one of the largest late Pears, which has but one fault, and that is its uncertain period of ripening; I have known it ripe as early as October and as late as March. Generally it is at its best about the beginning of the New Year. Passe Colmar is a kind highly valued here, not only for its qualities for dessert, but for its great productiveness. It also keeps in good condition for a long time after it is fit for table, a quality of no small importance. My next is Knight's Monarch, which has no rival for delicate flavour and perfume; it, too, keeps a long time after being ripe; its season is from the end of December to February, but here this season we have had it in use for two months past, and I am inclined to attribute its premature ripening to the excessively hot weather of the past summer. Ne Plus Meuris is the largest late Pear that has yet come under my observation; sometimes the flesh is a little gritty, but for a late Pear it may be said to be of the first order, and never fails to bear a full crop either on standards or walls; and so I might go on and name dozens of other varieties, all in their way excellent, but as my doing so would only add to the perplexity of those seeking a selection of really good kinds, the above will be sufficient. W. WILDSMITH.

Hockfield.

HARDY PLANTS IN FLOWER IN LONDON GARDENS.

THE unusually mild weather which we have lately experienced has been the means of bringing into flower many plants which naturally bloom later in the season, and which would, if clear, sunny weather prevailed, be very attractive, but the heavy and continuous rains which we have had have rendered them somewhat colourless and of shorter duration than they otherwise would have been. Iris stylosa is producing its lilac-coloured flowers in abundance in the Fulham nurseries, where Narcissus papyraceus may also be found in good condition. In Mr. Barr's grounds at Tooting the winter Heliotrope (*Pussilago fragrans*) is very beautiful, as is also the Crimean Snowdrop (*Galanthus plicatus*); *Galanthus Imperati*, too, is producing its large white flowers in great numbers. This Snowdrop, on account of the size of its blossoms, and their adaptability for button-hole bouquets, is well worth extensive cultivation. The purple-flowered Grape Hyacinth is also very pretty just now, as are likewise many plants of *Cyclamen Atkinsi*. The spring Star-flowers (*Triteleia uniflora* and *T. alliacea*) are making a good display in Ware's nursery at Tottenham; the latter especially has been producing quantities of flowers for many weeks past. There are also in bloom at Tottenham many species of Crocuses, Iberis, and Christmas Roses, and the Rosy Rock Cress (*Arabis blepharophylla*) is flowering abundantly in raised beds and in deep, sandy, well-drained loam. The Cape Pondweed still continues to produce its fragrant blossoms in profusion, a condition in which it will probably be found for some weeks to come should severe weather not set in. S.

HOUSE-TOP GARDENS.—Dr. Richardson, in a lecture on sanatory matters, delivered the other day at the London Institution, spoke as follows concerning these:—At the top of the house I would have, on a firm, almost level, asphalted roof, a brick and glass-covered garden, equal in extent to the area of the house. Into this the stair-shaft would finally enter, and any emanations from the lower part of the house would be eaten up wholesomely by the living vegetation. Heated readily from the kitchen, which should be on the third floor, this garden might have at all times a summer temperature, in which children could engage in luxurious and healthful play; ladies would find occupation in it, in the cultivation of flowers and evergreens, and in it the sterner sex might spend those hours which were now found so unspeakably dull, owing to the monotony of one or two rooms. In this garden, with the pleasant, the natural, and the beautiful, health would be trained, and happiness, her dependent sister, nourished.

NOTES OF THE WEEK.

COTONEASTER AFFINIS.—Among the best red berry-bearing plants must be ranked this Cotoneaster. We have a plant of it here about 20 ft. high, branches of which are every year at this time loaded with berries. I have this year used it, stripped of its leaves, for church decoration among the Holly instead of Holly berries. Our plant of it is always much admired by visitors, very few of whom seem to know what it is. It grows freely and deserves more attention than it receives.—JOHN GARLAND, *Killerton, Evesham*.

THE NEW WHITE HYDRANGEA.—This will be found to be one of the most useful of easily-cultivated market or conservatory plants. I saw it in 60 and 48-sized pots at Mr. John Cadnepes, of Flushing, Long Island, New York, where its large heads of pure white flowers were very beautiful. It also does well in the open border. Its flower-heads are quite as large as those of *H. hortensis*, and the plant appears to be in every way equally accommodating.—W. HOWARD, 29, *King Street, Covent Garden*.

PLANTS IN FLOWER ON NEW YEAR'S DAY AT PRESTON, CIRENCESTER.—In greenhouses—*Clivia nobilis*, *Amaryllis pardina*, A. sp. *Bolivia*, *Scilla natalensis* (a lovely spike of flowers 2 ft. high), *Hemanthus natalensis*, *Lachenalia orchoides* (?), *Veltheimia viridifolia* (a beautiful plant which is too little known). In frames and open ground—*Xiphion Histrio*, *Hessea spiralis*, *Crocus yraiensis*, C. *Fleischeri*, C. *Bryi*, C. *Orphanesii*, C. *Tourneforti*, C. *Imperati*, C. sp. *nova*, *Colchicum Bisignani*, *Galanthus plicatus*, and G. *Elwesi* (the two last named in bud).—H. J. ELWEN.

THE CEANOTHUS AS A WINTER FLOWER.—Those who have to provide cut flowers, either for small or large establishments, will find *Ceanothus azureus grandiflorus* most useful for that purpose. Flowering as it does at the ends of the young growths, it can be cut any length required, and its beautiful blue colour associates well with flowers of other tints. I have found it quite hardy, and have cut blooms of it from a plant growing here on a south-west wall from September to Christmas.—JOHN GOUGH, *Westwood Park, Drogheda*.

PERPETUAL-BLOOMING PELARGONIUM.—I can strongly recommend *La Grande* as a good winter and perpetual-blooming *Pelargonium*. I have had one now for upwards of two years grown as a standard in an 8-in. pot on my conservatory border, and it has never been out of flower the whole time. There are now upwards of a dozen fine blooms on it. It roots into the border, and every now and then I raise it to break the roots. I think in this and in its being grown as a standard lies the secret of my success.—L. T. B.

A WINTER-FLOWERING HONEYSUCKLE.—We have received from the Rev. Mr. Evbank cut specimens of *Lonicera fragrantissima*, which is now beautifully in flower in his garden in the Isle of Wight, and as sweet-scented as a Violet. It is one of the most useful of Honeysuckles, and one which, on account of its hardiness and fragrance, should find a place in every garden.

FLOWERS IN BLOOM OUT-OF-DOORS IN DORSET.—Among these may be mentioned Violets (The Czar, double Russian, and Neapolitan), Pansies, Wallflowers, Intermediate Stocks, Yellow Primroses, Polyanthuses, *Iberis sempervirens*, and Christmas Roses. In spite of the mild weather, however, growth is not so forward as one might have expected. Probably the excessive wet renders the ground cold and keeps it in check.—W. E., *Dorchester*.

LORD BURGHLEY APPLE.—Those of your readers who are planting Apple trees would do well to plant a few trees of this variety. Judging from some young pyramids planted here three years ago, it is a free-fruited kind. They bore fruit during the past summer when several other varieties planted at the same time and under similar circumstances entirely failed. It is a late dessert Apple of good size and appearance, and excellent in flavour.—H. J. C., *Grimston*.

PHALANOPSIS PORTEI IN BLOOM.—Probably the finest plant in the country of this lovely Orchid is now flowering freely in Lord Londesborough's collection at Norbiton. It is bearing three or four good spikes of large, beautifully-tinted blossoms. When better known this will probably be as great a favourite as any of the species belonging to this well-known genus.—M.

HABROHAMNUS ELEGANS FRUITING IN WINTER.—This vigorous Solanaceous plant will doubtless be familiar to many of your readers as a gracefully branching plant admirably adapted for training up the pillars of a conservatory, in which when planted out in a good border, it will keep up a succession of bloom nearly all the year round; but it is its fruiting condition to which I wish now to direct attention. When at Glasnevin a short time ago, I was much struck with its clusters of fruit some 6 in. or more in length hanging from the tips of the shoots. The bunches are oval in shape, and the individual berries about the size of Grapes that have just "set." Their

chief attraction hinges on their colour, which is a rich, rosy-carmine, varying a little in depth of tint according to the age and development of the berries. While some branches bore the rich-looking berries I have just described, others were in full blossom, but the flowers were very inferior as regards beauty compared with the berries. It was growing in a cool greenhouse where, being a Mexican plant, it is perfectly at home. If grown as it sometimes is under the continuously exciting influence of a stove, it is neither so free-blooming nor does it produce berries.—J. C. NIVEN, *Botanic Garden, Hull*.

SOPHRONITIS VIOLACEA.—Several plants of this pretty little Orchid are now very attractive in one of the houses in Lord Londesborough's garden at Norbiton. They are growing in small wooden baskets suspended from the roof, each plant being furnished with from twenty to thirty rich violet-coloured blossoms.—C.

OUT-DOOR VEGETATION IN SUFFOLK.—I have just gathered a *Gloire de Dijon* Rose fully expanded on an open wall. The common Primrose is in full bloom in sheltered spots, and bulbs of all kinds are at least a month in advance of ordinary seasons. Fruit-buds are swelling fast, and unless colder weather sets in soon the prospects of a fruit crop will be very uncertain.—J. GROOM, *Henham*.

BIGNONIA VENUSTA AT SYON.—This old-fashioned Bignonia is now finely in flower in one of the houses at Syon, where it grows in an inside border, its shoots being trained under the roof. From these the blossoms hang down in graceful profusion, and quite enliven the house with their bright colours. Few winter-flowering climbing plants are of greater value than this, or are greater favourites with bouquet makers.

ODONTOGLOSSUM CIRRHOSUM.—A fine plant of this new and rare *Odontoglossum*, in Lord Londesborough's collection at Norbiton, is now producing several very large and unusually strong flower-spikes, thickly set with buds, many of which are beginning to open. This is by far the finest plant of the kind which I have yet seen in flower.—S.

RAINFALL AT WELBECK IN 1876.—The amount of rainfall here in 1876 is 32.14 in., being about 7 in. above the average fall for the last thirty years as registered here. There have been several years with a larger rainfall, but few in which it has been so irregularly distributed. April, May, July, and August were very dry months, and September, October, December, and January quite the reverse. In December the rainfall here was 6.05 in., and if that be added which has fallen in January up to this date, the amount is 8½ in. This large quantity has quite flooded all the low-lying lands, and great injury has been done to the crops of winter Wheat where they have been covered with the water.—WILLIAM TILLERY, *Welbeck*.

ORCHIDS IN FLOWER AT MR. DAY'S.—The Orchid-houses of Mr. Day at Tottenham are, even during this wet, sunless season, wonderfully attractive, many of the plants being unusually well-flowered. Amongst these may be named *Laelia anceps*, which is furnished with nine or ten strong spikes thickly studded with large, delicately tinted blossoms. *Cypripedium Roezli* is in equally good condition, many of its flower-spikes being from 3 ft. to 4 ft. in height, and some of them branching from the sides, rather an unusual occurrence. *Odontoglossum cirrhosum* is also flowering freely here, one spike just going out of bloom having borne eleven large and prettily marked blossoms. *Laelia pumila* and *Dayana* (the latter as yet a scarce plant) are both finely in bloom, as are also several kinds of *Phalenopsis*; these latter are producing flower-spikes of a size and strength rarely seen, *P. Portei* being especially well flowered for the size of the plant; many others of the better known kinds of Orchids are also finely in blossom here, and foremost amongst these may be named specimens of *Phaius Wallichi*, which are bearing eight or nine flower-spikes, each exhibiting unusual strength. In short, all the plants grown here indicate excellent cultivation.—S.

PROPOSED SHOW OF CARNATIONS AND PICOTEES.—The undersigned desire to state that, in consequence of the uncertainty as to the action of the Royal Horticultural Society, they intend to promote a show of Carnations and Picotees to be held in London during the season (July), and they will be glad of the co-operation of other florists in the work. A meeting to arrange preliminaries and commence a subscription for the prize fund will be held at the rooms of the Horticultural Club, 4, Adelphi Terrace, Strand, on Wednesday, January 31st, at two o'clock, when the attendance of all interested will be greatly esteemed.—CHARLES TURNER, *Royal Nursery, Slough*; JAMES DOUGLAS, *Lorford Hall*; E. S. DODWELL, *Larkhall Rise, Clapham*.

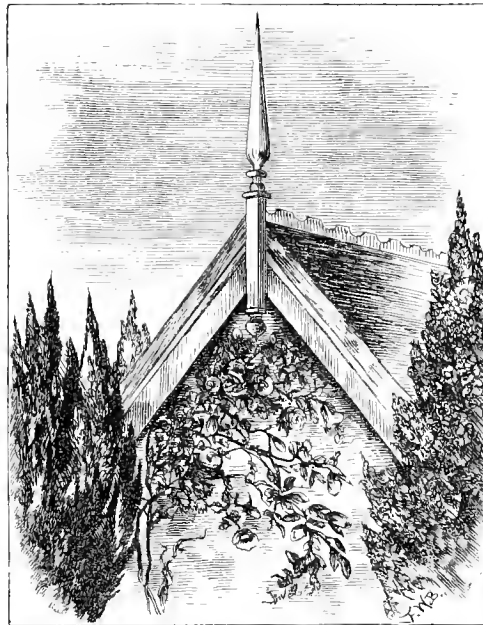
THE ALBUM BENARY.—M. Benary, of Erfurt, sends us a copy of the above, in which a great variety of vegetables is exceedingly well illustrated in colours. We shall probably refer to it again.

CHRISTMAS-FLOWERING ROSES.

WE have at least two Roses commonly grown in our gardens from which in mild seasons we can expect to gather delicately-tinted buds or flowers during the last week in the year. In this respect the old Monthly Rose or Common China rarely disappoints us in mild seasons, if planted in a sheltered position where it can obtain its full share of sunshine. The other variety—Gloire de Dijon—is, without doubt, the most floriferous of all Roses now cultivated in our gardens; it is the first to open its salmon or rosy-tinted buds in May, and after blooming at intervals throughout the summer, its flowers still linger until late in the year, unless indeed we have unusually rough weather. The annexed sketch represents the gable end of a cottage in Burntwood Lane, Upper Tooting, where in December last a dozen at least of good flowers of this last-named variety might have been gathered fresh and beautiful, and with foliage not often seen so perfect so late in the season. The whole secret as regards this extremely late blooming may be included in the two words sunshine and shelter, since not only is the Rose tree itself protected from cold rains by the overhauling weather-boarding, but on either side the violence of the wintry gales is broken by a Holly bush on the one side and a Yew tree on the other.

A propos of the present scarcity of Holly berries, I may say that the particular Holly tree here alluded to bears a very fair crop of its coral-coloured fruit nestling amongst the glossiest of leaves. Outdoor Roses at Christmas are not commonly met with even so far north as London, but I gather from what I have seen in the case just described that by planting Gloire de Dijon and the common monthly varieties on sunny walls, and giving them the protection of a broad projecting coping, and perchance that of a mat in very severe weather, those who do not possess a glass house need not despair of gathering a few fresh and fragrant Rose buds much later in the year than is generally the case at present.

F. W. B.



A Christmas-flowering Rose (Gloire de Dijon).

Wallflowers in Market Gardens.

—These are looking extremely well in spite of the long-continued rains which we have had. With early-planted breadths flowering has been fairly abundant for some time, so that cutting has been carried on more or less all through the winter. Should the present mild weather continue, Wallflowers will be in full bloom during February and March, as the plants are now full of buds at every point. This precocity is the result of early sowing and planting, practices that are well repaid by the occurrence of bloom so much earlier in the year than it otherwise would be.—A. D.

Berry-bearing Plants for Winter Decoration.—I felt disappointed in the remarks by "A." on this subject (see p. 18) that the Pyracantha was omitted. If any plant is to take the place of the Holly as a red-berried plant, it must be the Pyracantha; the quantity of berries produced by this plant is enormous when allowed to grow, as it will grow over a very large space. There is a gentleman's house, not far from here, the front of which is completely covered with this plant, and bunches of its brilliant berries may be gathered by the thousand. Will "A." kindly inform me which of the Cotoneasters is meant by the one alluded to whose berries "glow on the wall like masses of pearls?" I have often thought they looked like coral, but never heard of one whose fruit was like pearls. Cotoneaster Simmondsi is a truly handsome plant when in berry, and perhaps that is the only time in which it is truly handsome. When the prejudice for red-berried Holly has given way, plenty of beautiful berry-bearing shrubs are ready to take its place. What charming plants the Pernettias are for this purpose, literally loaded with berries of every shade, from purple to pure white! And why should not the Snowberry be used for winter decoration? Its slender

branches loaded with snow-white fruit thrust in here and there among evergreens, or in wreaths, would be simply charming, and a vaseful of the common-berried Holly mingled with the berries of the golden variety is a sight long to be remembered.—THOS. WILLIAMS, Ormskirk.

A White Germander Speedwell.—Permit me to add a word or two to my article on the Speedwells (see p. 611, Vol. X.). Mr. Moly, of Hawkchurch, informs me that he has found a white variety of the Germander Speedwell in Devonshire, a fact which I have all the more pleasure in communicating, seeing that he has promised me a plant of it. I have often wondered, considering how liable the various species of Veronicas are to sport from blue to white, that I had never met with a Germander Speedwell in any other garb than that of blue, nor indeed have I ever heard of such an occurrence before; hence Mr. Moly's discovery is all the more worthy of record. Anderson's Speedwell (*Veronica Andersoni*), not mentioned in my list as being one of the many hybrids which the shrubby section has produced, gave me a great surprise the other day when in Ireland, where, on the south side of Killiney Hill, it was used in the form of diagonal hedges to shelter a kitchen garden which sloped in a very precipitous manner to the very edge of the cliff overhanging the sea. Here it formed a series of continuous lines rich in fresh green foliage, and literally covered with dense spikes of purplish-blue flowers. It formed such a picture as few other plants can present in the dreary month of December, and is notably one of the very best sea-side plants we have.—J. C. NIVEN, *Botanic Garden, Hull.*

Primroses in January.—These are blooming freely in the open air, the rainfall in September having assisted to promote the formation of good foliage and strong crowns. At a time when flower gardens have little that is strictly floral in them, a few patches of coloured Primroses are not without interest. Well-established plants as a rule flower earliest, the vigorous root power possessed promoting the formation of strong crowns. Where choice kinds are scorched by the summer's sun, pieces of Fir spray or other shading material should be placed round them, as the loss of foliage is the greatest evil that can befall the plants. A moderate top-dressing of rotten manure will also prove most helpful.—D.

Bolander's Catchfly.—Mr. Niven's remarks in his paper on the Catchflies in regard to this plant are in accordance with my own observations. I had some dozens of patches of it this summer, and it appeared to be absolutely leafless—in this respect it is similar to *S. flava*, a singular species, with yellow flowers, but no beauty. *S. Bolanderi* may have a charm of its own as a species, but it appears too weedy for decorative purposes. It may however look well in a mass, as we sometimes see *Saponaria calabrica*. Like Mr. Niven I have never seen the true *S. regia*, as the plant purporting to be it from different sources, has always proved to be a weed. And now allow me to point out what is evidently an error; the woodcut illustration on page 11 of *S. Saxifraga* cannot represent that plant. The remarks respecting it are perfectly correct, but the figure given must belong to some other species. The petals of *S. Saxifraga* are so deeply cut as to be truly stellate, so much so that the plant appears to have ten petals instead of five.—THOS. WILLIAMS, Ormskirk.

Convolvulus major in Autumn.—Last October this stood conspicuously among the many flowers that the mild autumn weather induced to bloom. It was sown in February very thinly in rows, stuck like Sweet Peas, and when loaded with blossoms was strikingly effective. It is a plant that seems to suit all seasons, neither drought nor excessive moisture apparently affecting its growth, and it keeps in beauty as long as any annual that is used for the decoration of our gardens.—J. G.

Violas in Mixed Beds.—A general impression exists that Violas are not satisfactory in dry seasons and situations, but during last summer, which was exceptionally hot and dry, some beds of *Viola Perfecta* and *Polygonum variegatum* were very effective and continuous. By employing a combination of flowering and fine-foliaged plants for mixed beds, one may confidently rely on having good results in all seasons, whether wet or dry. Most of the Violas possessing various shades of purple flowers form effective contrasts with dwarf variegated plants, such as variegated *Alyssum* or *Lady Plymouth Felargonium*. —JAMES GROOM, *Henham.*

THE GARDEN IN THE HOUSE.

WATER BOUQUETS.

THESE are ordinary bouquets preserved in water from which the air is excluded, and which keep fresh and beautiful for periods of a week or a fortnight, or even three weeks, according to the character of the flowers or foliage used, the care with which they are made, and the purity of the water employed. Water bouquets, formed chiefly of Ferns and other foliage, such as Crotons for example, so rich in colouring, and so diverse in form, may be preserved in perfection for a month or more. The beauty of each leaf and sprig is also displayed to the utmost perfection in water bouquets. There is no huddling of the flowers or foliage into masses, on the contrary, each branchlet, leaf, or flower may be allowed to float gracefully in the water while seen throughout its entire length in all its natural beauty. This extreme grace and lightness form one of the chief charms of water bouquets. But, it may be asked, how are they made? Thus:—Take a shell, a piece of coral, a flint, or other stone, or bit of metal—the two first are the best—and construct a bouquet of any handy size upon or around it, securing, however, all the materials of the bouquet to whichever one of these substances may be used. The weight of the coral, shell, or stone, should be sufficient to hold the bouquet in one position in the water; if coral be used, it adds to the beauty of the bouquet to allow part of it to be seen through and among the flowers; if stones or other weights be employed, they may readily be hidden with the flowers or foliage of the bouquet. A piece of lead drilled full of holes to allow the bouquet wires to be passed through them, forms a handy base for water bouquets. It is easy to place each flower and leaf exactly where the eye of cultured taste may direct in such a base so as to form bouquets of any desired character, colour, or size. Every part of the bouquet and its base must be perfectly clean; no Moss or other material that would cause the slightest sediment must be used in its formation or arrangement. If any dust or dirt adhere to leaf or flower it should be washed off, either before or immediately after making.

Having finished the arrangement of the flowers, three things are needful for the completion and display of the water bouquet: these are—a bell-glass, or glass shade without a knob, a china or other plate or dish with a flat, even surface, and of course waterproof, and a tub or pailful of clean water. Glass, shade, dish, and water, must all be thoroughly clean; the pail or tub must be sufficiently large to allow the bouquet, glass, or other dish, and bell-glass, to be all submerged in water together. With bouquets of any size, the simplest mode of proceeding is to bare the arms beyond the elbow, place the dish in the tub, set the bouquet carefully in the centre of it, and, holding it in position with one hand, place the glass shade in the water with the other sideways and deep enough till it is perfectly full of water, then turn it over the bouquet and on to the dish without emptying it of water, or exposing any portion of the glass to the air; if properly done, there will be no air bubbles or empty space at the top of the glass; should there be any, the glass must be turned back again, re-filled with water, and turned over again till it is entirely filled with water. There can, however, be no difficulty if the tub or pail be large and deep enough to admit of the whole process of placing and covering the bouquet being accomplished under water. The dish must then be grasped firmly on each side, and lifted out of the water, pouring a little of it from the outside rim of the dish in taking it out, so that it may be carried easily anywhere without spilling any, which it would be difficult to prevent were the lip of the dish beyond the globe full to the brim. The inexperienced, however, had better use a sponge for this purpose, as the change of level necessary to get rid of this outside water is apt to let out some from the inside also and to let in the air, which spoils the effect. A little water should also be left outside the bell-glass, as it tends to make the union between the glass and its base more secure. Dish and glass should then be wiped dry, and the bouquet placed on a drawing or sitting room table. The whole bouquet floats in the water above the level of the dish, and the effect, if everything be perfectly clean, is most pleasing. The air in the leaves and flowers comes

out and remains like crystals on their surface, and almost every sort of flower and leaf too, seems to vary in the amount of air expired by them. These aerial crystals form rapidly during the first hour or two, continue bright and beautiful for several days, and then many of them seem to collapse in the water. Bouquets of this kind must, of course, be handled and moved with care, and the dish on which they stand must be held nearly level. Those to whom their management is entrusted must be cautioned not to hold them on one side in dusting, or not only will the water come out with a rush, but the glasses will often break into fragments with the pressure of the atmosphere upon the internal vacuum caused by the loss of the water. Of course it will be understood that in such bouquets the water is kept in the glass by atmospheric pressure, and that being the case it will be obvious that the air outside would support a column of water under the conditions described as high or higher than the ceilings of most sitting-rooms, therefore glasses of any size may be used with safety. In renewing such bouquets some care is necessary. The only safe course, in fact, is exactly the same as that pointed out for enclosing them in the glasses. Remove dish, glass, and bouquet just as they stand, plunge them overhead in water, and the whole will fall asunder. To the careful observer the bouquet and water alike give obvious notice of time for removal. When the flowers lose their brightness, and the water becomes a little cloudy, the bouquet should at once be removed. Glass, dish, and weight must all be scrupulously cleaned, and a new bouquet made and placed in position, as already pointed out. The lasting qualities of such bouquets are not wholly owing to their submersion. They also escape all gas and fire-dried air, and enjoy a much more uniform temperature than they would do under other conditions. They likewise admit of the use of flowers that may be injurious or disagreeable to many from their excess of sweetness or of disagreeable odour. For example, many have a positive dislike to the odour of Chrysanthemums; these, especially the Japanese ones, with their long, thread-like petals, are among the most interesting flowers for water bouquets. Paneratiums, again, Eucharis, Nymphaeas, and other Liliaceous plants are excellent for the purpose, as are also Narcissi, Hyacinths, and Snowdrops. Many of the Begonias and Moss Rose buds are remarkably beautiful in water bouquets. But any or all flowers may be tried; and those who have few or no flowers may make chaste and pleasing water bouquets with nothing but leaves and berries, such as Mosses, Ferns, Grasses, Holly, Retinosporas, or even Hips, Haws, and Ivy leaves. Water bouquets would be useful in smoky towns and crowded dwellings, where flowers droop and fade almost as soon as they enter them. Constant complaints are made that cut flowers sent to Loudon and other large towns droop and die on their arrival. A few at least of these may easily be preserved in water bouquets for several weeks.

D. T. FISHER.

WINDOW PLANTS.

WINDOWS filled with healthy Scarlet Pelargoniums, Fuchsias, Saxifrages, and similar plants, always convey a sense of refreshing coolness to a room during hot weather, and even in winter window gardening well repays any little extra attention that may be bestowed upon it. It is indeed gratifying to witness the progress which this branch of cultivation has made of late years, and its beautifying effect upon the dwellings of our cottagers and artisans. Drawbacks I have certainly frequently noticed, but with a little care these may be overcome. First, as regards potting. A plant should never be put into a dirty pot; on the contrary, all pots should be thoroughly washed, and not used until they are quite dry, otherwise in shifting, the ball sticks and the roots get mutilated. In the matter of drainage, the greatest care is necessary, as it is one of the chief points with respect to successful cultivation; and again, in watering window plants much care is likewise necessary, particularly in winter. When they are growing freely, however, they must be well supplied with water, for if the soil be allowed to get too dry, the roots cannot obtain the amount of moisture which is required. On the other hand, to deluge them with water is equally a mistake. Enough should be given to thoroughly penetrate the soil and no more. I have

frequently noticed the plan of placing pots of window plants in pans and saucers adopted. It is, however, a bad system, inasmuch as it impairs the efficiency of the drainage, consequently the soil in time turns sour, the leaves become yellow, and the plants themselves fall into bad health. Some plants require more water than others, and therefore should be watered oftener. Among these may be named the White Arum Lily, Common Toadflax, Creeping Jenny, Musk, *Spiræa japonica*, Oleander, and many kinds of bulbs—plants which will even succeed with saucers under them. Another drawback to successful cultivation is the prevalence of painted pots, a condition which destroys their porosity. All window plants should be in porous pots, and in order to secure this let them be kept scrupulously clean. Window plants should have as much light as possible and plenty of air, and they should not be too much crowded. It will likewise be found advantageous to expose them often to mild, gentle showers, which will have a tendency to regenerate them, and to clear the foliage of dust and other impurities. When potting, the soil should be used in a medium state as to dryness. If it be too wet, it becomes hard and almost air-tight, and under such circumstances no plant will keep long in health. Potting and pruning should not be performed at the same time. Plants such as Fuchsias, for instance, ought not to be potted until they have slightly started into growth. Any pruning which they may need should be done first, and just when the buds have begun to break into growth, the roots may be considered in a fit state to be benefited by a shift into fresh soil. For window boxes ornamental-foliated plants should be mixed with flowering ones, such as *Duc Van Thol* and other early Tulips, Hyacinths, and Crocuses. Beyond these it is almost needless to name the kinds of plants best adapted for window culture, but in addition to *Pelargoniums*, *Fuchsias*, *Calla æthiopica*, and *Myrtles*, I would have *Cannas*, *Solanums*, *Chrysanthemums*, *Hydrangeas*, *Ferns*, *Saxifrages*, *Stocks*, *Mignonette*, *Caladiums*, red-leaved *Dracænas*, *Cactuses*, *Petunias*, and *Amaryllises*. JOHN BOYD.

Balbriggan, Co. Dublin.

Honesty Pods as Winter Ornaments.—Few subjects useful for winter house decoration are more easy to be obtained by every one than the seed-pods of the Common *Honesty*. The note (see p. 2) respecting them induces me to mention that *Honesty* is so easily raised from seed in spring, and is so very showy through the month of April, that it deserves a place in every garden. When dressing the pods to obtain the seed, the branches are simply thrashed out without regard to the pods, but where these latter are required for indoor decoration, the pods should be taken between the forefinger and thumb singly and gently rubbed; the outer scales then fall off, leaving the inner and almost transparent division intact. It is better to do this patiently than to thrash or otherwise roughly knock the seeds out. The white-flowered variety produces the best pieces, and only those seed branches should be selected that are thoroughly robust and well-ripened.—D.

The Christmas Rose.—Walking recently along the Hounslow Road I was much struck with the beauty of several fine plants of this charming white *Hellebore*, covered with large clusters of flowers. How correctly this hardy plant is named was truly exemplified, for these were in full bloom on Christmas Day and through the most dismal period of the year. Looking at the scarcity of white flowers in midwinter, it may be worthy of consideration whether it would not pay to protect these clumps of bloom by means of large bell-glasses, supported by thin bricks or tiles to admit the air, and yet exclude the rain. The purity of the blooms would be much enhanced by this slight protection, and if somewhat drawn, they would be none the worse if wanted in a cut state. The Christmas Rose dislikes frequent removal, and therefore the lifting of strong plants of it annually into frames or houses would not answer, whilst bell-glasses would afford protection, and be serviceable in other ways.—A.

Long-stalked Violets Best.—These have hardly received the attention which they deserve. Such Violets as *The Czar* and, in a lesser degree, *Victoria Regina*, are invaluable for bouquet purposes or for vases, on account of the length of their stalks, which are long enough to reach the water or to be worked up into bouquets without mounting, and hence their greater longevity and increased adaptability for bouquet purposes. Both have been exceptionally plentiful and fine this autumn and winter. *The Victoria Regina* is our favourite, though *The Czar* is also a noble Violet, very sweet, and with the longest stalk of any.—D. T. FISH.

TREES AND SHRUBS.

CUTTING DOWN LARGE EVERGREENS.

THE freedom with which healthy Laurel bushes break and grow again when cut down is well known to those who have experience with shrubberies, and cultivators are in the habit of cutting such subjects down without hesitation, when occasions arise for so doing; but with very old trees stubbing-up and re-planting is sometimes recommended in preference to cutting down and trusting to the old stumps to form a cover again. I venture to say, however, that unless the trees are very old and feeble indeed, nay, almost dead, they may be cut down with impunity, and without any doubt about their growing again and furnishing freely, in fact, they make large bushes sooner than young plants do. Many a scraggy, old bush I have seen left standing because the proprietor did not wish to do away with it, and was afraid to use the saw. I have operated on many such during the last ten years without any mishaps, and strangers to see the trees now would imagine they were quite young. They are mostly Portugal Laurels from fifty to seventy years of age, and, before they were cut down, standing 30 ft. or 40 ft. high, and as much and more in the spread of the branches, with stems 3 ft. or 4 ft. in circumference. All of them were dying off at their tops year by year, and the living branches made scarcely any growth, but they flowered and seeded with the utmost freedom, a sure sign of old age and debility with the Laurel in the north, where young and vigorous trees never flower as they do in the south of England. Well, we cut them all over, 2 ft. from the ground or so, and found that the old limbs were in most cases dead down to the ground inside, there being only a ring of living wood of no great thickness next the bark—in some places, indeed, scarcely anything but the bark itself. Most of the cutting was performed in spring, some of it being done shortly after the new year; but about March or April is the best time, just before growth commences. A few of the bushes in prominent positions had their roots top-dressed with refuse soil, but the greater number of them received no attention in that way. All broke, however, very thickly, and made tolerably good bushes the same season, completely hiding the old stumps. One of the most scraggy specimens growing on the lawn, whose limbs of which were dying off annually, was cut down nearly to the ground where the stem was about 18 in. thick, and top-dressed for 6 ft. or 7 ft. out all round. This tree I measured the other day, and found it was 10 ft. high, 12 ft. through, in robust health, and nearly as round as a cricket ball, though it will only be four years come May next since it was cut down. The vigorous young growth has deposited quite a new layer of wood round the old stump, and has no doubt also induced the formation of fresh roots, making the old tree really young again. It is this deposit of new bark which regenerates the tree to a great extent. The more young growth there is the thicker the annual rings of bark become, and the greater the quantity of roots produced. Another old veteran Portugal Laurel, whose branches were spread far and wide upon the ground, was cut wherever the limbs touched the soil, and they have now sprouted and are like a thicket of healthy young bushes. The Holly is amenable to the same treatment. Old trees cut down throw up perfectly straight shoots, and soon make shapely young trees. We have a number of these here which had at one time been so treated. Our soil, I should state, is extremely thin and poor where the Laurels are growing, which has probably helped to forward their decay. But evergreens are not the only subjects which may be renovated in this way; and, while there is any vigour in the tree, it is never too late to begin remedial measures. One instance is worth recording. Some time ago an ancient Oak tree—probably 1000 years old, for the stem was 7 ft. in diameter several feet from the ground—was pointed out to me that had put on a “growing spurt” during the last fifty years or more, in consequence, it was supposed, of alterations in the configuration of the ground, and the clearing away of other trees around it. The tree previously had been going back, it was thought, and there was a large hole on one side of it where a man could easily enter to the hollow interior—capable of holding several people—but now, owing to the fresh deposit of wood round the

sides of the hole, a boy cannot squeeze through it. The tree has at one time lost limbs through decay, as can easily be seen; but, at present, it is in good health, and makes considerable growth annually.

J. S.

Forest Meteorology.—About three years ago we ("Academy") reviewed Prof. Ebermayer's account of the work of the Bavarian Forest Academy at Aeschaffenburg, and now we have the first report of a similar nature from Prussia from the pen of Dr. A. Müttrich. Ten observing stations have been organised, three being in Alsace and Lorraine, one in the Eifel, and the other six in various parts of Prussia Proper, from Gumbionen to Erfurt. Each establishment consists of two stations, one in the forest and the other in the open ground. The observations comprise the ordinary routine of simple meteorological observations, with special attention to evaporation, and also to the temperature, &c., in the crown of the tree—i.e., at the points where the main branches spring—and we have the tabular monthly results for each station, but without much discussion. It would be a matter of great interest if some of our own large proprietors would establish similar stations on their estates, but we fear that at present such an idea is Utopian. In connection with the same subject of the effects of forests on climate, we may here notice Herr Wojekoff's short paper on the climate of Manitoba, which appeared in the "Austrian Journal" for October 1. He points out in it that the station at Winnipeg, where the observations have been conducted for some years past under the superintendence of the Bishop of Rapert's Land, is admirably fitted to furnish information as to the influence of prairies and forests on climate, inasmuch as the face of the country has hardly yet been materially altered by cultivation. Among other interesting points it may be noticed in that region how, since the disappearance of the bison, the struggle for existence has been carried on between the Grass and the trees, sometimes the one and sometimes the other type of vegetation predominating. The period of observation is, however, far too short as yet to afford results of much value as to climate.

Abies Fraseri.—At a recent meeting of the Academy of Natural Sciences of Philadelphia, Dr. Engelmann, of St. Louis, spoke about *Abies Fraseri*, the very local species of the highest mountains of North Carolina, which he had just visited, together with several botanical friends, members of this Society. This is the tree which caused these mountains to be designated the Black Mountains, giving their summits that sombre hue for which they are known; they seem to grow nowhere but on these mountains, and only on those that reach up to or above 6000 ft. altitude. The northern localities claimed for the species rest on confusion with forms of *Abies balsamea*, the common northern Balsam, of which our tree may be claimed to be the southern representative. *A. balsamea* does not seem to extend southward further than the Virginia mountain region, and it would be interesting to ascertain how near both species approach each other. Besides the well-known characters of the cones and their cusps, excellent distinctions are found in the structure of the leaves of both species. It may not be generally known, though it is a fact to which, since several years, some European botanists have called attention, that the anatomical structure of the leaves of these species, as well as of Conifers in general, is extremely various, and that this structure well characterizes many species, and is one of the safest means to arrange them in natural groups. *Abies Fraseri* and *balsamea* are so nearly allied that without fruit they are constantly confounded, but the structure of the leaves will always distinguish them so well that a single leaf, or even a fragment of one, will invariably solve all difficulty. The leaves of *Abies* have under the epidermis, and between it and the cells of the parenchyma, which are full of chlorophyll, an arrangement of cells of thick walls, elongate form, and destitute of chlorophyll, analogous to bast cells, which have been called hypodermic cells; we find them in all species of *Abies* on the edges and on the keel, where they strengthen the leaf, but their distribution under the epidermis of the upper side of the leaf is very different in different species—they may be wanting there altogether, or may be differently grouped, or may extend over the whole upper surface; now in all forms of *A. balsamea* they are there almost entirely absent, even in those of the highest New England mountains, while *A. Fraseri* exhibits under the microscope a continuous hypodermic stratum of them.

The Spindle Tree.—Mr. McNab complains, and with justice, of the scarcity of Holly berries this year. There never was, however, a more plentiful supply of the beautiful coral-like fruit of the Spindle Tree (*Euonymus europæus*). It is not by any means a common shrub, nor so often seen as its undoubted merits deserve, although a British plant. It establishes itself in woods readily, and its berries form a favourite food for pheasants and other birds.—SALMONICERS.

THE LIBRARY.

"WHITE'S SELBORNE." *

WHAT interests us most in this book are the pictures of Gilbert White's house and garden which show the true English garden and the garden on the house, a feature not often seen out of England. These peeps at an old English cottage are refreshing to eyes wearied with the miserable parallelograms and other puerilities of the modern garden. In these days of besom drawing and hatchet engraving, it is pleasant to see evidence in this book that the invaluable and still unrivalled art of good wood engraving is yet extant among us. Mr. Delamotte's drawings are charming, and for the most part well engraved. In a passage written in the year 1778, one is reminded of the recent date of some improvements often thought of long standing. On p. 285 we read:—

As to the produce of a garden, every middle-aged person of observation may perceive, within his own memory, both in town or country, how vastly the consumption of vegetables is increased. Green-stalls in cities now support multitudes in a comfortable state, whilst gardeners get fortunes. Every decent labourer has his garden, which is half support, as well as his delight; and common farmers provide plenty of Beans, Peas, and Greens, for their hinds to eat with their bacon; and those few that do not are despised for their sordid parsimony, and looked upon as regardless of the welfare of their dependants. Potatoes have prevailed in this little district by means of premiums, within these twenty years only; and are much esteemed here now by the poor, who would scarce have ventured to taste them in the last reign.

Our Saxon ancestors certainly had some sort of Cabbage, because they call the month of February sprout-cale; but, long after their days, the cultivation of gardens was little attended to. The religious, being men of leisure, and keeping up a constant correspondence with Italy, were the first people among us that had gardens and fruit trees in any perfection, within the walls of their abbeys, priories, and monasteries, where the lamp of knowledge continued to burn, however dimly. In them men of business were formed for the State; the art of writing was cultivated by the monks; they were the only proficient in mechanics, gardening, and architecture. The barons neglected every pursuit that did not lead to war or tend to the pleasure of the chase.

It was not till gentlemen took up the study of horticulture themselves that the knowledge of gardening made such hasty advances. Lord Cobham, Lord Ilia, and Mr. Waller of Beaconsfield, were some of the first people of rank that promoted the elegant science of ornamenting without despising the superintendence of the kitchen quarters and fruit walls.

A remark made by the excellent Mr. Ray in his "Tour of Europe" at once surprises us, and corroborates what has been advanced above: for we find him observing, so late as his days, that "the Italians use several herbs for sallets, which are not yet or have not been but lately used in England, viz., *Selleri* (Celery), which is nothing else but the Sweet Smallage; the young shoots whereof, with a little of the head of the root cut off, they eat raw with oil and pepper." And farther he adds, "curled Endive blanched is much used beyond seas; and, for a raw sallet, seemed to excel Lettuce itself." Now this journey was undertaken no longer ago than in the year 1663.

This beautiful edition of a famous book is published by Messrs. Macmillan, who have spared no expense in making it a well illustrated and well printed one.

Poetry for Children.—The little volume now before us is the most recent addition to the familiar "Golden Treasury" series, of which Messrs. Macmillan are the publishers, and in which are comprised the gems, not only of English poetry, but of the lyrical Muse of France, Germany, and Scotland. Mr. Palgrave does this kind of work well, and has produced a charming and useful book for children, and one which will also be enjoyed by children of larger growth.

Books on Conifers.—What are the names of the best volumes treating of Conifers?—P. S. [Gordon's "Pinetum" (Bohn), Carrière's "Les Conifers" (Librairie Agricole, Rue Jacob, Paris), and the Monograph in De Candelie's "Prodromus."]

* "White's Selborne." With Notes by Frank Buckland. London: Macmillan & Co.

COTTAGE GARDENING.

The Turf-pit.

THIS is a most desirable structure for cultivators on a small scale to possess, and its erection need not involve a very extravagant outlay; in fact, I have known cottage gardeners who have done all the carpenter's work themselves during their spare time, while any one of course can glaze a frame (as glass can be had of any size) and paint the lights when put together. Those living near a large town can generally purchase machine-prepared sash-bars, rails, &c., at a cheap rate, and it will not require a great amount of skill and ingenuity to saw them into lengths and put them together. Those who have means and are ambitious, may construct their pit walls with bricks, but during the last few years brickwork has advanced considerably in price, and there are after considerations that should be borne in mind, even by those who can afford the extra cost. In the first place, a brick pit is not so useful for the purpose of wintering half-hardy plants as a turf-pit; a severe frost will penetrate through a 9-in. wall, but I have never known the same thing to happen with a turf or earth-built wall; and, in the second place, if a tenant had to leave his garden or premises, and could not arrange with the incomer, he could remove everything of any value, level down walls, and the place would be restored to its original condition; but brickwork, unless under a special agreement, becomes the property of the landlord. Altogether, to a man of limited means, a turf-pit would be far cheaper and more useful than a brick-built one. The first thing to be done is to decide upon the size, and then make arrangements for making the lights, which should be of good 2 in. red deal, and the glass should not be of less weight than 21 oz. to the foot, which will be much warmer, and cheaper, too, in the long run, than thin, light, inferior glass; these, however, are details which every one is competent to decide for himself, as also the size so far as regards length, but it should not be too wide, or the lights will be cumbersome to move; the extreme width (inside measure) should not exceed 6 ft., and perhaps in many cases 5 ft. will be considered sufficient. If the pit be erected on a dry site so as to permit of its being sunk from 6 in. to 12 in. in the ground, the earth taken out perhaps may be used in constructing walls if stiff enough to hold together, as there are comparatively few cottagers who could obtain turves with which to build the walls, and neither are they necessary, for earth walls, from containing no fibre or perishable materials, are more permanent than turf. If the earth be sufficiently adhesive to stand when cut to a straight face, which will be necessary for the inside of the pit, to avoid loss of space the outsides had better be cut sloping to throw off wet and to permit of the banks being turfed over, or a thin coat of asphalt may be used instead if preferred. A good coat of limewash, in which a portion of rough sand has been mixed to thicken it, will give the inside a neat, clean appearance, and at the same time tend to keep the earth from crumbling down. The usual arrangement in buildings of this kind is to have the back wall double the height of the front, as this gives a good fall to

carry off the water—always an important consideration in winter in unheated structures, and this of course must be thought of when making the lights so as to have them of sufficient length.

On a very sandy soil, where the walls cannot well be moulded into shape so as to stand alone without inside support, it will be better to line them with builders' slates, which will give the pit a thoroughly strong and neat appearance. Larch poles about 5 in. or 6 in. in diameter sawn into suitable lengths will make capital supports for the framework, and these of course should be let into the ground from 15 in. to 18 in., and have the soil rammed firmly round them. They should be placed 4 ft. apart, so that each pair of posts back and front comes under each rafter; the tops of the posts, when firmly fixed, should be just the height that the walls are intended to be. I have built pits without these posts with the wall-plates simply resting on the earth-walls, but the posts do not add much to the cost, and when the wall-plates are nailed to the tops of the posts, the whole framework is strong and immovable, as if built in brickwork. The posts should stand just flush with the inside, and if it be intended to line the walls with slates to keep the earth from crumbling down, it will be necessary to nail a stout lath to the posts along the

bottom, and another along the top of the slates to take the bearing on the inside; and this should be done first, and then the earth-walls can be built firmly against the slates outside. If the back wall be more than one slate high an extra row of laths will be required. The thickness of the walls may in some measure correspond with their height, and should start with a base considerably broader than their top is intended to be, which will admit of the outside being rounded off and covered with turf. Such a pit will not be unsightly anywhere; and, although in my anxiety to make myself understood, I have been somewhat prolix, yet the actual

work of building after the lights are made is trifling. When the pit is finished, put in the bottom a layer of broken stones, and 2 in. of cinder ashes over them, for the double purpose of keeping out the worms and for drainage. The uses to which a pit of this kind, in the hands of enthusiastic, persevering men, can be put are so numerous, they can only be just glanced at here. Almost all half-hardy plants, with careful management to guard against damp settling on them, may be successfully wintered in such a pit, by having warm coverings for the lights during frosty weather. In February it might be filled with fermenting materials and converted into a hot bed; or, if long enough, a division of rough boards could be made across the centre, and one-half filled with fermenting matter, and the other remain as a cool pit for hardening off plants before being placed in the open air. Stable litter, leaves, tan, sawdust, or spent Hops from a brewery, each and all may be usefully employed in hot-bed making in spring. But where the supply is very limited, it will be better to defer the commencement of propagating and seed-sowing till the middle of March, as then the sun will have more power, and will greatly facilitate the task of keeping the bottom-heat steady. With a pit of this kind 3 ft. deep at back and 18 in. in front, if filled up to within 6 in. or 8 in. of the glass with a mixture



Gilbert White's Garden.

of the materials I have named; or the bottom may be filled in with stable manure with 8 in. or 10 in. of sawdust or any similar material on the tops in which the pots can be plunged. If the stable manure be fresh, it will do no harm, as the depth will not be great and the sawdust will absorb and keep down any destructive gases that may be evolved by fermentation. Of course, as a rule, if large heaps of those substances be used for hotbeds they should first undergo some preliminary mixing and turning to sweeten and drive off some of the rankness, otherwise much mischief may be done. Even Hops, if used in a large bulk and fresh from the brewery, should be used with caution.

On the other hand, when a considerable proportion of leaves or sawdust can be procured and mixed with the more heating substances, the strong heat from the latter will be neutralized and rendered beneficial without much previous trouble. With a hotbed of this kind ready for use about the middle of March, all kinds of seeds that require a little warmth to start them may be sown in pots and plunged in the sawdust close to the glass. A pinch of Celery may be sown and grown on for early work, or a few Cauliflower seeds, if there be any scarcity of early plants; Tomatoes, also, and a few Cucumber seeds of the Telegraph, or some other good kind, should be forwarded for the purpose of planting in the pit when the propagating is pretty well over. All the preparation necessary would be to turn the heating material over, shake it up, mix it well together, put a barrowful of good turfy loam into the middle of each light, and when the warmth of the bed has penetrated it, the Cucumber plants should be turned out, one or two in the centre of each light. Cucumbers would succeed well in such a pit all the summer, and if well looked after, and near a market, they would go a long way towards paying for the pit. After the Cucumbers were over in autumn, the pit could again be filled with plants requiring protection, either vegetables (such as Cauliflowers or Lettuces) or flowering plants that might afterwards be useful in brightening up the windows and rooms of the cottage. And whilst briefly noticing this phase of the subject, what a wide and interesting field here lies open to the possessor of such an adjunct to his garden; by means of it how many beautiful annuals might be started in spring either for window or flower border decoration! Or, if considered only from a utilitarian point of view, what a good use might be made of such a structure for bringing forward Rhubarb, Seakale, early Potatoes, Early Horn Carrots, Radishes, Lettuces, and small salads in early spring! Though all this and much more may be done with only a turf-pit, with the half of it furnishing a hotbed during the spring months, yet it is not advisable, nor indeed is it likely that any one person would attempt so much. Let each one follow his own inclination in the selection of his subjects; but he should only choose a small number, and grow them well. I merely mention a few among the various plants that might be grown in such a place to show the scope there is for individual taste, not with the idea that any one will attempt to do so much in so limited a space. In fact, I may say the greatest evil in the management of small glass structures is attempting too much—forgetting that plants live and breathe, and are as liable to contract disease from overcrowding as human beings are.

E. HOBDDAY.

Veitch's Self-protecting Autumn Broccoli.—I have been cutting this Broccoli from November 26 to the present time (January 6), and now Snow's Winter White and Backhouse's Winter White are just coming in to take its place, thus giving us a continual supply of Broccoli through the winter months. All who have not given Veitch's Autumn Broccoli a trial should do so, for it is a most useful kind.—W. G., *Brighthelm, Dorchester.*

Keeping Potatoes for Two Years.—Allow me to give my experience in this respect with the two varieties, Brownell's Superior and Beauty. I took some tubers and put them in a box and set them on one side in the cellar in October, 1875. Last autumn I found the tubers firm and solid, and cooking them, I found the quality good. In 1871, I (E. S. B., in "Albany Country Gentleman") exhibited in Rochester, at the State Fair, tubers grown in 1873. After the fair was over I put some of the tubers in my valise, and on my return home put them in an open box and set it on a barrel in a common cellar having a sandy bottom. These tubers had been kept the year previous in an open barrel without any extra care, with the cellar windows and door open during the day. The box was open all winter, and the tubers were never moved after they were put in the box. At the end of April, 1875, one of my neighbours called on me, and I brought the tubers out of the cellar. We decided that they would grow, and I planted them in the garden. They did grow, producing a good yield of fine Potatoes. A farmer in this county says that he has some now, grown in 1875, that are in good condition for cooking.

THE INDOOR GARDEN.

CYRTOCERAS REFLEXUM.

This is a handsome, free-flowering plant of moderate growth, very nearly allied to the Hoyas, which in some respects it closely resembles, especially in the general appearance of the flowers, and the short spurs on which they are borne, and that, as in the Hoyas, are persistent, lasting for many years, continuing each season to produce one or more of their white and yellow crops of bloom. The shoots are of a stout, woody nature, erect, and comparatively few in number, springing from the collar of the plant, and not inclined to branch; the leaves are thick and leathery, and of a bright green colour. This plant is well adapted for cultivation by those who have not the convenience of a large stove, as it is a slow grower, and takes a considerable time before it occupies much space; moreover, it bears cutting-in freely when required, breaking up from the bottom if the heading down be performed in the spring. It is indigenous to Manila, and consequently needs to be kept always moderately warm, but when in flower during the summer, it can without injury be moved to a conservatory, but must not be allowed to remain in a draught, although it does not suffer from the drier atmosphere usually maintained like many stove subjects; this can easily be accounted for through the plant never requiring an atmosphere laden with moisture to the extent that many occupants of the stove need; in fact, if the atmosphere in which it is grown be too close and damp, it often has the effect of causing the flowers to fall off before they open; neither does it thrive in so much shade as quicker-growing, thinner-leaved plants demand, if in the hottest weather it be slightly protected from the direct rays of the sun, so as to prevent the leaves being scorched. It strikes freely in the spring from half-ripened cuttings, especially if these consist of side-shoots that can be taken off with a heel; they should be inserted singly in small pots in a mixture of half sand and fine loam, placed in a brisk heat, and covered with a bell-glass; they will root in four or five weeks, after which inure them to more air, and let them have plenty of light, but not much sun until they have become more fully established, when they should be removed into 5-in. or 6-in. pots. It will succeed in either peat or loam, but I prefer the latter when it can be had of good quality with plenty of turfy fibre in it—whilst the plants are small it should be broken fine; add about one-sixth of sand, according to the nature of the loam, and drain the pot well, as they cannot endure stagnant water. *Cyrtoceras reflexum* does not make a large quantity of roots, consequently it must never be overpotted, and care should be taken not to give too much water, especially until the soil has got well filled with roots. As soon as they have started fairly into growth, the points of the shoots should be taken out to cause them to break, as it has a natural tendency, if not checked, to extend without branching sufficiently. During the summer, the night temperature should be kept about 70°, giving air in the daytime when the heat rises to 80° with a thin shade; syringing overhead in the afternoons will assist growth. Continue the above treatment until the weather begins to get cooler, when discontinue the use of the syringe, as also shading, giving more air and less water to the soil. Through the winter a night temperature of 60° will be sufficient, keeping the plants in the lightest and driest part of the stove; by the middle of February give them 5° more heat in the night with a corresponding increase in the day, but do not re-pot until the roots have got well into motion; and as one shift in the season will be quite sufficient, it is well not to move them till April, when they should be put in pots 3 in. larger, now using the soil in a little more lumpy state. Tie the branches well out, bending them down close to the rim of the pot: this will have the effect of causing young shoots to push up from the collar; at the same time pinch out the points of those existing. As the weather gets warmer increase the night temperature to 70°, and proportionately more in the day with a little shade, damping overhead when the house is closed. All that will be requisite during the summer will be a continuance of the treatment recommended. Most likely a few flowers will be produced by the strongest shoots, but it will not be advisable to move them out of the stove, as the object will be to get

them to make as much growth as possible. In the course of the summer the tops of the strongest shoots may be tied down, which will still further induce them to break back, and in this stage of their growth will be found more effectual than stopping, which latter operation does not always cause this plant to branch out several shoots, as in the case of the majority of subjects. Treat through the autumn and winter as before. Again, in spring give more heat as the advancing season demands it, and re-pot into pots 3 in. larger in size than before, tying the branches well out, so as to leave the plant quite open in the centre, to still further induce the production of young growth from the base. This *Cyrtoceras* is one amongst a number of subjects that require especial treatment in this respect, for if left to its own course, it would spire up to a considerable height and become naked at the bottom; whereas, if the strong shoots be kept tied well out, the position to which they are thus bent causes the annual production of fresh growth from the bottom that takes the place of any branches that become derided of leaves at the base, which should be removed. If the progress made be satisfactory, the plants will this summer bloom freely, each shoot producing a number of their epaulette-like bunches of flowers. After the flowers are formed it is better not to syringe overhead, as it sometimes has the effect of causing their dropping off. The subsequent treatment of the plants will require to be similar to that so far recommended. When grown to their full size, 13-in. or 14-in. pots are large enough for them; after they are fully developed they should be turned out each spring, the drainage examined, and such of the upper portion of the soil as is not occupied by roots removed and replaced with new. When they have arrived at a size such as we now suppose them to be, they will be much benefited during the summer

by liquid manure once a week, but in using it to this and similar spare-rooted plants it must never be given either so strong or in such quantities as with naturally robust growers; it is even necessary to be careful never to apply water at all until the soil is somewhat drier than with most stove plants, or destruction of the roots will sooner or later be the result, especially during the winter when no growth is progressing. I may add that when this plant is thus injured at the roots, it has not the power to recuperate itself like many others. The leaves flag and grow limp. The leaves of the *Cyrtoceras reflexum* are of too tough and leathery a nature to be much injured by the attacks of such insects as thrips, aphides, or red spider, unless when these are allowed to get to a considerable head, yet they will live upon it, especially if the atmosphere in which it is grown be kept unreasonably dry. If affected with these the plants should be laid on their sides and freely syringed, when the insects can be easily removed, the smooth surface of the leaves both on their upper and under sides not affording much harbour for them; the stout substance of the leaves also admits of the water being thus applied without injuring them; where scale has made a home upon a plant it will be found necessary to resort to sponging and cleaning thoroughly with soft soap and water, afterwards giving it a good syringing to cleanse it from all impurities.

T. BAINES.

LUCULIA GRATISSIMA.

This fine old plant, covered with its gratefully-scented and pretty blossoms at the dreariest season of the year, is certainly a sight worth seeing. Hardly a winter passes without commendatory notices of this *Luculia* appearing somewhere, and no wonder, for no one can see a large bush of it in full flower, and filling the whole structure with its fragrance, without admiring it, to the exclusion of almost everything else in the conservatory at the time. Yet, strange to say, it is a comparatively scarce plant; I could not count six good specimens in all the gardens with which I am acquainted, and I do not suppose there are many dozens of really fine plants of it in the country, though it was introduced some fifty years ago. One reason, perhaps, is that it does not succeed well in a pot, and is not very easily propagated by means of cuttings, while every one has not the opportunity of planting it out as it should be, if desired to be grown successfully and easily; for under such conditions it grows as freely as a Laurel bush and requires but little attention. When grown in pots, unless plunged and allowed to remain permanently in the same place, the plant never grows with vigour, and it is subject to insects, and particularly to green fly, which infests the clusters of buds before

they open, and spoils them if not prevented by timely attention; but when planted out in the conservatory border it usually grows and flowers most freely. A greenhouse temperature suits it best during summer, but in order to induce it to expand its flowers perfectly it should not be subjected to a lower temperature than 45° or 50°, with a rise from 5° to 10° on fine days during winter, and this is a higher figure than is considered safe for most greenhouse plants of the hardwood class; hence the *Luculia*, when grown along with these, often fails at the flowering period. Still, those who have no other accommodation

need not despair of growing it on that account; I have seen it do well in such quarters if the situation have been well chosen, as, for example, when the plant was placed near the glass on the sunny side of a house with a sharp-angled roof, so that it received the benefit of the sun when it shone during the short days. In cold houses it should of course have the warmest place if possible, and if it can be trained on a warm back wall all the better. A young plant of the *Luculia*, planted out in a compost consisting of good turfy loam, peat, and leaf-mould, or leaf-mould and sand—but loam principally, if it be not heavy and inclined to be clayey—will make a large bush in a few years, and yield hundreds of blossoms, which last a long time in perfection, and which continue to expand in succession for six weeks or two months. As soon as the plant has done flowering, all the shoots should be cut back without hesitation to one or two buds, for they grow from 18 in. to 2 ft. during the summer. An old plant when pruned, though it looks like a mere scraggy stump, makes a very large and shapely bush before the end of summer, and every shoot is furnished with a well-developed truss of flower-buds, which begin to open about Christmas if the temperature be suitable. During both the growing and flowering season the roots must be well supplied with water, and care must be taken that the mass of roots near the stem does not get dry; at the same time the *Luculia* is impatient of a wet or sour soil—conditions



Gilbert White's Garden—another view (see p. 26).

not likely to arise, however, if the bed in which it grows have been well drained, and seeing that it is such a vigorous grower. Established plants of it should not be afterwards disturbed by lifting or moving, unless a good ball can be got with the roots, and this is not an easy matter, as they are not of the soil-holding kind.—J. S. W.

GLAZING HOTHOUSES.

THERE are now various systems of glazing hothouses in vogue; but the old astragal and rabbet method of fixing the glass and puttying on the outside is still by far the most common, and is adhered to by some of the foremost horticultural builders of the day. It is by no means certain, however, that this is the best plan. We have no objections to the common astragal and rabbet—indeed, we could not suggest a better plan at present; but the puttying outside above the panes might perfectly well be dispensed with, for it does no good whatever, and adds largely to the expense of glazing, in men's time and material; and when the houses get old it becomes a positive nuisance, and also a danger, as may be easily shown. In erecting glass houses it is the usual practice to give the woodwork one or two coats of paint only, and these sometimes rather thin, before glazing, and afterwards to give it one or two more, according to the contract. If the last coats be applied in favourable weather, and if in after years painting be regularly attended to, the putty will last for a considerable time; but if the woodwork have not been thoroughly seasoned—a state of things always to be feared—if it have been painted before it was dry, or if the work have been negligently performed in any way, the chances are that the putty will crack when it gets hardened and leave the wood, and that rain gets in between the wood and the putty; and there is then no alternative but to peel all the putty off and do the work again, if drip and decay are to be prevented. Another objection to outside putty is that, whenever a pane has to be replaced—a frequent necessity—the old putty has to be chipped off before the glass can be put in; and ten to one that pane is left unpainted until the house gets a general coat, and the unprotected putty cracks and become useless in the meantime. And this goes on and on, until the evil is almost beyond remedy; for no work on an estate is so much neglected as the painting of the hothouse.

These are some of the evils of puttying outside, and they are well known, and are to be seen in operation, more or less, in almost any garden; but it is chiefly on the score of economy and convenience in keeping the woodwork in good order that we would dispense with putty. It is not required to hold the glass in, or to prevent drip, which it rather promotes, and we do not know that it is of the least use in any other respect. By far the best plan is simply to "bed" the glass in putty on the inside, and sprigg it above. Some years ago we bought a frame glazed in this way, just to try it, and have been more than satisfied with the results. This frame had received three coats of paint only when we bought it, and has had none since, but it is still perfectly drip-proof and looks as if it would remain so, even if every morsel of paint were washed completely off; and yet there is hardly more than a handful of putty about the whole concern. The sashes are made in the ordinary way, but the astragals are a little stronger than usual, and the glass is cut to fit exactly, and pressed closely down upon the rabbet until the bed of putty is about as thin as a wafer under it, but quite sufficient for the purpose, for the less putty there is under the glass the better. Above, each pane is sprigged at the bottom just above the lap, thus securing both panes at once; and when the woodwork gets the two last coats of paint, the brush is brought over the edge of the glass about one-sixteenth of an inch, which makes all safe. The sashes are 6 ft. long and about 4 ft. wide; but, owing to the strength of the astragals and the angle iron by which they are secured at the middle, they are quite firm and safe, and bear handling much better than sashes glazed in the old way. This system is particularly adopted for pit lights, for in their case outside putty is easily shaken or shifted, unless the sashes are laid aside after being glazed or repaired till the putty sets; whereas, with the others, a pane or two can be put in and sprigged by anybody in a few minutes, without any danger of their shifting.

Were we about to erect a range of houses, however extensive, we should adopt this system of glazing without hesitation. It has all the advantages claimed for "dry glazing," as it is called, without its drawbacks. Some of the plans we have seen of buttoning the glass on, something like slates upon a roof, are good, in so far as they provide an almost unbroken surface to the light; but such structures require a very much greater amount of heating surface to compensate for the escape of heat by the numerous laps of the roof, through which the wind blows as through a sieve. A system of hothouse construction, very much talked of some years ago, failed chiefly

through this cause. The windage from dry laps in puttied roofs even is very great, as we all know, and keeps down temperature more than frost does. Formerly the laps used to be puttied up also, which made the house easier to heat, and the practice was discontinued not so long ago; but, further than this, it is not desirable to practise dry glazing with houses in which high temperatures have at least to be kept up.—"Field."

PLATE LVI.

THE SIBERIAN LADY'S SLIPPER.

(*CYPRIPEDIUM MACRANTHUM*).

Drawn by H. NOEL HUMPHREYS.

THIS is one of the most handsome of all the Lady's Slippers, and the fact that it is perfectly hardy in a sheltered position as far north as York is an additional recommendation, inasmuch as with care it may be grown in the open air almost anywhere. It has been re-imported quite recently by Messrs. Backhouse, of York, and our sketch was made from a specimen that flowered in their nurseries during the summer of 1876. Messrs. Backhouse write that all they know respecting this plant is that it is a native of Siberia and the Ural Mountains. It grows with them in strong and rich soil intermingled with fragments of limestone in a narrow fissure of rockwork. The slope is west, so that the morning sun only catches it partially; "broken sunlight," they add, "is what it prefers." The annexed illustration renders all description of the flower unnecessary, but we may allude to the general resemblance which the petals and lip of this singular flower bear to the distended pouch and wavy tentacles of the common octopus, the white, crimson-dotted, shield-shaped staminode in the centre of the flower representing the head, and the golden pollen-cases, one on either side, the eyes; even the oblique *pose* of the entire flower suggests the motion of the octopods as they propel themselves through the water. It may here be pointed out that there are two Siberian Lady's Slippers, both of which have been repeatedly introduced to our gardens during the past thirty or forty years, but they never seem to have become established. These are, firstly, our present plant, concerning which Messrs. Backhouse may be complimented upon their superior culture, as evinced by the great size and vivid colour of the flowers, unless, indeed, this is a distinct variety due to the same protean variability which attends its tropical allies, much to the confusion of the botanist, although a gain to the cultivator. Another nearly-allied plant is *C. ventricosum*, which has flowers similar both in structure and colour; indeed, it seems questionable whether they are more than forms of the same type. A good coloured figure of this last-named plant may be found in the second series of Sweet's "Flower Garden," vol. i. t. 1, and also in Reichenbach's "Flora Germanica," vol. xiii. t. 497. To cultivators, however, botanical affinities are matters of but little moment; to them the chief point of interest will be to know that these Siberian *Cypripediums* rank among the most brightly coloured and distinct of all the hardy Lady's Slippers. B.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Echeveria Peacocki from Seed.—I consider this the handsomest of all *Echeverias* yet introduced. I bought one plant of it two years ago, and having managed to flower it and ripen seed, I am now in possession of many dozens of seedlings. This is apparently the only way to increase the stock of it, as my plant has never produced an offset.—W. W. H.

Hedychium Garduerianum planted out.—This fine old plant, often found in stoves and warm houses, grows vigorously and flowers well planted out in a greenhouse which is merely protected from frost. At Osmaston Manor it is planted out along the back walls of the Vineries in narrow borders, and there grows and flowers freely. A much better result is attained in this way than when the plants are grown in pots.—V.

Forced Lilac.—Few flowers are more appreciated at this season than those of the Lilac, and, what is of equal importance, few plants force so easily. Some plants of the Persian kind lifted last spring were forced very gently, and after the young growth was matured, they were plunged in ashes in a sunny position. These, when introduced to heat early this season, were a mass of bloom on New Year's Day.—J. Gaoon, *Heatham*.

Derbyshire Spar in Plant-houses.—This is one of the cleanest and most effective substances that can be used on which to set plants, or for covering bare spaces under stages, as the more it is washed the brighter it looks. No Moss or other objectionable material of that kind will adhere to it, and if mixed with soil, it may be washed and sifted as clean and bright as when first used.—J. G.



THE KITCHEN GARDEN.

CELERY CULTURE.

To grow Celery thoroughly well entails more than an ordinary amount of labour and expense, hence we seldom find it much cultivated, excepting by those who have these means at command, or in localities where the soil is specially adapted to its culture; Nottingham, for example, is a great locality for Celery culture, and to some of the local exhibitions held there enormous heads of wonderful size and solidity. In the year 1869 an exhibition of vegetables was held at Chalton, a small town near Nottingham, at which there were twenty-eight exhibitors, the prize winners showing heads of wonderful size and solidity. The weights of the six heaviest sticks were as follows—7 lb. 14 oz., 7 lb. 10 oz., 7 lb. 2 oz., 7 lb., 6 lb. 10 oz., and 5 lb. 11 oz. It will thus be seen that even cottagers and amateurs, with merely simple means, often attain better results as regards size than even our foremost gardeners. Quality is the main point to be considered, and this can only be obtained by paying strict attention to the crop from the time of sowing to that of reaping. There are two distinct varieties of Celery, the Red and the White; the former is the hardiest, and the kind generally grown for winter supply, the White being, however, the most useful for early work.

Sowing.

Sowings for supplies of Celery during July and August should be made in heat early in January, White kinds being best. The seed should be sown thinly in pans or shallow boxes, well drained and filled with light, rich soil, covering the seed very slightly with finely-sifted mould or sand. A gentle watering should then be given, and the pans or boxes plunged in a gentle bottom-heat if possible, or they may be placed on a shelf in any warm house. It is a good plan to place a piece of glass over the pans, and on the glass lay some damp Moss. The plants will be up in a few days, when the Moss must be removed, and in a day or two afterwards the glass be taken off and the plants freely exposed to the light to prevent them from becoming drawn. When the plants have made a pair of leaves above their seed leaves they should be taken into a somewhat cooler temperature, where after a week or two they will be ready to prick off into other boxes or pans 2 in. or 3 in. apart. They should then be placed as near the glass as possible in an early Vinery or Cucumber pit, or some other such place, giving them all the air possible. The soil must be kept clear of weeds, and be constantly stirred with a small stick among the plants; and if a little soot be occasionally sprinkled amongst them and well watered in, the beneficial effects will soon be seen. As the weather becomes milder, the plants may be taken out and placed in cold pits or frames, and kept rather closer than when they were in heat. By the beginning of April there will generally be frames at liberty that have been recently occupied by Early Asparagus, &c., if not, a temporary frame must be made and placed on a

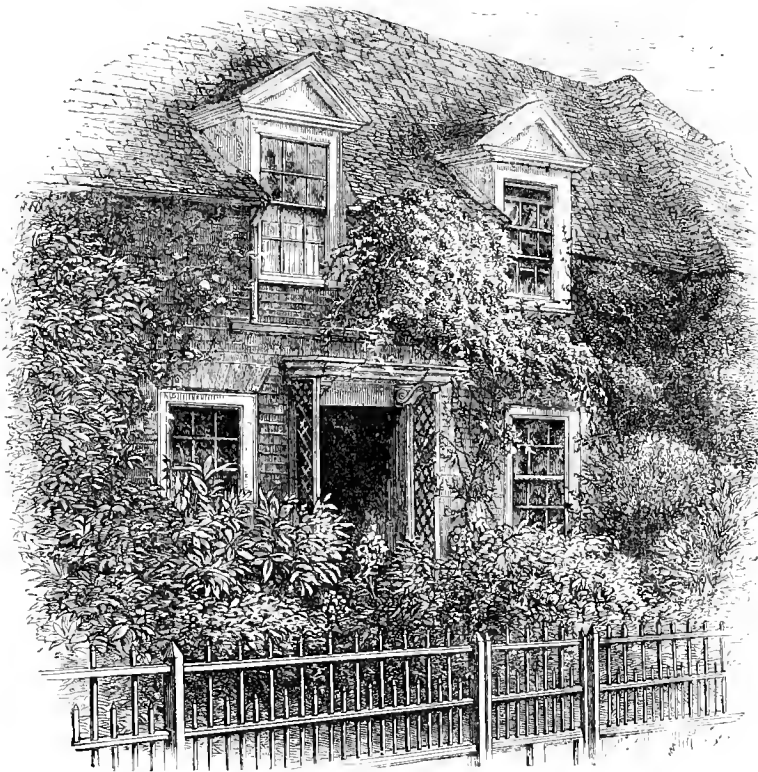
slight hotbed composed from old linings, &c. Into the bottom of the frame must be put 4 in. or 5 in. of good rotten manure, and on the top of the manure about 6 in. of good loam and manure in equal quantities mixed together. The plants should then be taken out of the boxes with as much ball as possible, and planted in the newly-prepared bed 9 in. apart; give a good watering, keep close for a few days, cover during cold nights, and sprinkle overhead on sunny afternoons at the time the lights are closed. When planted, the tops of the plants should not be more than 6 in. from the glass, and as they advance in growth, copious waterings must be given them at the roots, and the frame raised a little at a time until the weather is warm enough to admit of its being taken off entirely. When this is the case a good earthing should be given, and another in a fortnight or so afterwards. Fair Celery may be obtained in this way by the middle of July. The first sowing to obtain plants for the open trenches should be made in heat in March, and treated in the same manner as just mentioned, and transferred to the trenches early in June.

This may be planted in double rows 9 in. apart and 6 in. between the rows. The trenches for this batch need not be more than 2½ ft. from centre to centre. This will come into use in August and September. The second sowing should be made in a cold frame in April, or under hand-lights on a warm border under a wall. When large enough, the plants may be pricked out in an open border, prepared in the following manner:—Rake the ground level, and well tread it to make a hard bottom; on this place 2 in. or 3 in. of rotten manure. Tread this well down, and sprinkle a little soot over it to keep down the worms; 4 in. of good loam should then be placed over this and firmly trodden, the surface raked level, and the plants pricked into it 6 in. apart each way. The principal sowing for late autumn and winter supply should be

made early in May on an open border, kept well watered, and otherwise treated as the previous sowings, and transferred to the trenches in the middle or end of July. The Red kinds of Celery are best adapted for this crop. Late Celery requires to be kept growing from the commencement with as little check as possible; and better results will be obtained from plants sown late and kept growing than from those that have been sown early and kept in a stunted condition. Very early Celery is better for being transplanted several times previous to planting out, otherwise it is liable to run to seed. To save seed, the best plants should be selected in the autumn and marked, and in spring lifted and placed in a rich, warm border, and supported with stakes. Plants for this purpose should not be earthed up.

Planting.

If Celery plants have been pricked out on a bed with a hard bottom as recommended, they will be found to come up with a good ball and the roots intact, *i.e.*, if care be taken in lifting them. The best plan is, two or three days previous to planting, to run a sharp knife or spade down the centre of each



Gilbert White's House (see p. 26).

row, and do the same crossways, following this with a good watering, which will settle the soil and prevent any sudden check to the plants. In a day or two a spade may be run under the plants, which may be lifted, placed upon a handbarrow, and carried to the trenches, where they may be planted from 9 in. to 12 in. apart, according to the variety grown and the space at command. There is a difference of opinion as to whether it is best to plant in single or double rows. Where large Celery is required the former is doubtless the plan to be preferred, but good Celery may be grown by planting double rows 8 in. apart; in this case, however, wider trenches will be necessary. When double rows are planted it is not advisable to plant in angles, as is often done, but plant two abreast, each pair being not less than 10 in. or 12 in. apart, unless it is a very dwarf variety that is grown. By planting in pairs the operation of earthing is much more easily accomplished than when in angles, and the roots can be dug up with greater facility. Dull, showery weather is the best time for planting Celery, during which operation the plants should be pressed in firmly, the roots covered 2 in. or 3 in. with earth, a good watering given to settle the soil, and if 1 in. of half-decayed leaves be afterwards spread over the surface, they will prevent evaporation and encourage the surface roots.

Preparing the Ground, Trenches, &c.

Ground that is intended to be planted with Celery in the spring should, if possible, be trenched in the autumn to a depth of 2 ft., or deeper if the soil will allow. If the soil be not already rich, a good dressing of rotten manure should be well incorporated with it during the process. The surface should be left in a very rough state, in order to expose as much of the soil as possible to the pulverizing influences of the weather. The trenches may be dug any time during the winter, and the vacant spaces planted in the spring with early Cauliflower, Lettuce, Endive, or any other crop that will be off the ground before the Celery will require earthing up. It is a very common practice to dig Celery trenches too deep; this should, however, be guarded against, especially for late crops, and when the soil is of a wet nature, for if the water cannot readily drain away from the hearts of the plants during wet weather, the Celery will rot, and disappointment be the result. Trenches 6 in. deep after the manure is added will be deep enough, and this will admit of the trenches between the rows made by earthing being lower than the roots of the plants, by which means good drainage is secured. The width of the trenches and distance apart must be determined by the variety grown, and whether they are to contain single or double rows. For single rows, 18 in. will do if wider cannot be afforded; and for double rows, 2 ft. apart must be allowed. As Celery is a surface-rooting plant, it is necessary to allow as wide a trench as possible, inasmuch as in narrow trenches the principal feeding roots of the plants soon come in contact with the sides, and thus to a great extent escape the benefit of the manured soil specially intended for them. Good Celery may be grown in trenches 4 ft. apart from centre to centre, but if 5 ft. or 6 ft. can be allowed, all the better. Where ground is limited, the dwarf-growing kinds of Celery are the best to grow.

Manure.

The best kind of manure for Celery is that obtained from the stable or cowhouse, and when mixed together these form excellent material. Mr. D'agnell, of Sherborne Castle, well known as an excellent grower of Celery, prepares manure for it in the following manner:—In the autumn large quantities of horse-droppings are collected, and receive a liberal admixture of soot, salt, and lime; the mass is turned over several times to well mix it, and is then allowed to remain for use in the spring. Worms being one of the chief enemies of Celery, manure containing them should be avoided as much as possible; thus, if liberal dressings of soot, salt, and lime be mixed with the manure as mentioned, these enemies will be quickly dispelled. Rank manures and strong manure water should be avoided, as they have a tendency to cause the Celery to become spongy and ill-flavoured. Although soil of a rich, sandy nature is best suited to Celery, yet good results may be obtained in almost any well-drained soil, pro-

viding it is well enriched with manure; indeed, excellent heads are sometimes grown even in peat soil.

Earthing.

This operation should be performed only on dry days, taking care that none but well-pulverized dry soil is permitted to come into immediate contact with the plants. The soil should be chopped down on each side of the trench, and turned over to dry early in the morning, well breaking the lumps as the work proceeds. When the plants are dry, which they will be towards the middle of the day, the operation may be commenced by carefully removing any decayed leaves from their bases, then gather the leaves neatly up together with the left hand, and firmly place the soil round the plants with the right. When all the plants have been served thus, the sides of the trench should be evenly chopped down, and the surface left as neat as possible. Many people tie up the plants with matting previous to earthing, and some use Celery collars; but neither of these plans are necessary, and only involve needless trouble and labour, and earthing can be performed by any intelligent man without resorting to such troublesome means. It is certainly not necessary to earth up Celery when it is growing rapidly, and moreover it is a bad practice. A little earth, pushed down after a heavy watering to prevent evaporation, is all that should be given during the growing season, and it is well known that some of those who grow the finest Celery in the country, do not earth until full growth is attained; indeed, some of them do not earth at all, but effect the blanching by other means. That some persons pursue quite a different course, we are well aware, yet one would think that a single hint would suffice to point out that it is difficult to give abundant waterings to Celery, and impossible for it to benefit by the natural rains, if we pile a sharply-sloping bank of firm earth close along each line long before the plants have attained maturity or vigour: no plant is more benefited by copious waterings than this, naturally an inhabitant of swampy places. The repeated earthings which Celery receives in the majority of gardens are not only harmful to the crop, but the cause of a great waste of time and labour. Common errors are frequently made in its culture: one being that in earthing up the plants too much soil is applied at one time, by which the hearts are covered in, and are thus made to bulge out on one side and become deformed; whereas, when the operation is more lightly done, as well as oftener, the heads are kept upright and the growth is much more vigorous. Another error, which is perhaps the worst, is "earthing" or banking up the crops too heavily in autumn or before winter sets in. This is a very common practice, especially among amateurs, who often cover their Celery over head and ears. This is sometimes done with a view to keeping out the wet and frost from the crops, but in such cases the plants fail to grow from want of air; in fact, as already indicated, they are buried, and consequently soon become rotten; and, though the wet weather may be blamed for this, it may even happen when the ridges are covered with litter or boards. It is therefore obvious that earthing should be done more sparingly, taking care that the growing hearts of the plants are well above the ridges, especially in the case of late crops. If this be done, there will seldom be any reason to complain of crops rotting, however damp and severe the winter may be. Those who protect the ridges overlook the fact that the means employed for this purpose prevent the escape of moisture by evaporation; consequently, the plants are more apt to rot than if their tops had been freely exposed.

Celery in Market Gardens.

In market gardens Celery is grown in bulk much better than we generally find it in private gardens. The crop is large, crisp, and solid, and neither care nor labour are spared to bring it to perfection; indeed, this is the only outdoor crop in market gardens that is persistently watered. The Red and White Solid are the only two kinds cultivated. The seed for the first crop is generally sown in February broadcast, on a slight hotbed, and thinned out after the plants are up. A large or main sowing is made in March, and another for a late crop in April. All sowings are usually made in frames in gentle hotbeds, but Mr. Geo. Steele, of Fulham, sows his main crop on an open-air bed in the last week of February; a trench some 15 in. or

18 in. deep, 6 ft. wide, and any length (say 20 yards), is cast out and filled firmly with fermenting manure, over which a thin layer of common soil is placed. This being levelled and well rolled, the seeds are sown broadcast over the whole surface, and slightly covered by sifting some light soil over them. The bed is then covered with rank litter until the seeds germinate, when the litter is removed during fine days, but replaced at night until the weather is sufficiently genial for the plants to stand without any covering whatever. The seedlings, both in frames and in beds, are freely exposed day and night in favourable weather, and in the case of frames the sashes are lifted until the weather permits of their entire removal. When the seedlings in either case become thick they are thinned a little, and when they have attained a fair size they are pricked out (in May) into sheltered beds in the open air, 9 in. between the lines and 2 in. or 3 in. apart in the rows; Plants from early sowings are pricked out into frames, where they are allowed to remain until time and convenience permit them to be permanently planted out. A great point observed by all growers is to have the ground to be planted with Celery prepared as soon as possible in autumn or early winter by having it heavily manured all over, and trenched and ridged, permitting it to remain in this condition until it is required for Radishes or spring Cauliflowers. Generally the Celery is planted in the alleys between the beds of Radishes, thus leaving the rows 5 ft. apart, or between alternate lines of Cauliflowers in May and June, in which case the Celery will have taken to the soil and begun to grow before the Cauliflowers are all removed. When this sort of interplanting is practised, provision is made at manuring time by marking off the ground in 5-ft. breadths, and giving a quadruple quantity of manure under each line, and into this the Celery is eventually planted, thus saving the labour of re-manuring, which would cause a disturbance of the spring crop. If the Celery, however, be planted in an open field after the entire removal of a spring crop of vegetables, the ground is cleared of all refuse, dug over, and marked off; and if it have not been previously prepared by giving the extra quantity of manure in winter, that must now be applied. For the first crop and the main crop the rows are usually 5 ft. apart; for the late main crop, 4½ ft.; and for the latest or winter crop, 4 ft. apart. No ridges are formed, as is the case with private gardens, but a furrow is merely drawn with a hoe, as for sowing Beans or Peas, but a little deeper and wider; and into these furrows the plants are inserted by means of a dibble. When a clean field is lined off and ready for planting out with Celery, it is precisely like a field of seed-beds, with the beds all 4 ft. wide, and the alleys 1 ft. wide and about 4 in. or 6 in. deep. Market gardeners never plant more than one row of Celery in each line, and the plants are about 8 in. or 9 in. asunder; the strongest are planted out first, and the remainder form successions. Experience has taught growers for market that deep planting is not advisable, more especially in the case of late crops, from which dampness at the root must be avoided; they therefore plant in such a way that, when finally earthed up, the roots shall be above the level of the trenches. The space between the rows is planted with Lettuces, French Beans, Cauliflowers, Coleworts, or Endive. Earthing up is generally performed at three different times. In the first operation, which is done when the plants have made large leaves and gained good strength, the soil is placed about the plants from the intervening space, taking care not to injure the roots of those growing on it. At the two first earthings a hollow is left along by the necks of the plants, so as to conveniently retain a plentiful supply of water. At the third and final earthing, the ridges are well closed at the top by pressing in the soil against the plants by means of wooden rakes; a man going on either side of the ridge, and both, pressing with the back of the rake at the same time, fill up the furrow effectually. Celery is most liberally watered during the growing season, either in the ordinary way, or by means of hydrants, to which 1-in. metal pipes are attached, or common gutta percha hoses; hogsheds placed at intervals in the fields supply water for the purpose. The best method of distributing the water is by the hose, which should be used in the following manner:—One man carries the end of the hose along the ridges, directing the stream of water, whilst another keeps the hose free

from twisting; and if the length be great a third must be employed to help, and to attend to the turning off and on of the water. Towards the end of August the early produce comes into use, and from that time until February a regular supply is kept up. Before lifting the crop, part of the leaves are switched off with a sickle, then, in lifting, a trench is thrown out at the end of a ridge, which is partially levelled, and the crop is removed at the same time; a set of people being employed in lifting, another in wheeling or carting to the packing shed, and a third in washing, bunching, and packing. Sometimes a crop of Celery is grown expressly for use in soups. For this purpose the seeds are sown in June, pricked out as usual, and finally transplanted into rows 2 ft. apart. As they never grow much, this distance is sufficient for them, for they are seldom earthed up more than once, and if kept until the warm weather sets in, they will certainly "bolt," and become useless.

Insects.

Celery is liable to several kinds of insect enemies—one especially, generally termed the Celery fly (*Tephritis ouopordinis*); this lays its eggs on the foliage, and eventually they are transformed into dark brown maggots, incased in thin wafer-like capsules. The only remedy is to pick off the infested leaves and burn them. Celery is also liable to canker when grown in wet or wormy soils. Slugs, especially in moist weather, are very destructive to Celery crops; but their progress may be arrested by dredging along the tops of the ridges with air-slaked lime, or soot, and operating similarly on the banks or hedgerows surrounding the field where it grows. Highly cultivated ground, if inland, is seldom infested by this pest; but where there are neighbouring hedges or banks, these slugs are sure to be found; and, no matter how well tilled the soil may be, their ravages will become apparent unless preventive measures are resorted to.

Celery for Exhibition.

In growing Celery for this purpose, it must be observed that the point of quality prevails over all others; next to this, of course, comes size, but large, coarse heads are of no use for exhibition, and it is inadvisable to try to grow them too large, as is often the case, and this at the expense of quality. Celery is sometimes shown in its perfect form, and at other times is trimmed. In the latter case it should by no means be dressed until just before it is put on to the exhibition table, inasmuch as it will then have a fresh appearance. The best blanched and most perfect heads should always be selected, and they should all be as near alike as possible. We have seen Celery for this purpose beautifully blanched by enclosing the plants in two half-drain pipes placed in an upright position, the cavities being filled with dry sand. Where, however, large quantities are required, this becomes troublesome and expensive. In digging Celery, care should be taken to have always a good open trench in front of the plants, so that the spade or fork can be got well under the roots, and the whole raised up without damaging the hearts. Large quantities are spoilt in many places by being dug by persons who do not pay attention to this matter.

Varieties.

There are now so many kinds of Celery that it is impossible to say which is really the best. Many varieties are known under different names, all of which are said to be distinct kinds, whereas in reality there does not exist more than one-fourth of the number advertised in nurserymen's catalogues. An admirable opportunity for observing this was afforded recently at South Kensington, where prizes for the best three sticks of any white, and the same number of any red kind, were offered, and which brought together thirty lots of considerable variety. From the Society's gardens forty-five so-called kinds were exhibited, but the differences between many of them were indeed minute. Celeries differ materially in colour, in habit of growth, in solidity—both of leaf-stalk and of the entire plant—in flavour and crispness of eating, and in good keeping qualities. As a rule the Red Celeries are thought to possess these latter qualities to a larger extent than White sorts, but this is not the case with all Red kinds.

White Celeries are, however, considered to be the earliest, and are, therefore, invariably grown for the first crop. Some kinds are undoubtedly earlier than others, but much more depends on the period at which the seed is sown and the after culture, than on the early qualities of any particular variety. Probably there are no vegetables of which fewer sorts are grown in any one garden than Celery, one good White and one good Red kind generally being enough; but it is a matter of no little moment to be certain that these sorts are really good, solid, crisp, and well-flavoured. Celeries that have a sprawling habit of growth seldom turn out so well as upright, close-growing kinds. Moreover, the latter are easier to handle in earthing up, and it is only those who perform this operation who can fully understand the difference between the two habits of growth, as upon the manner in which earthing up is performed depends much of the subsequent value of the crop. Among Red kinds none equal, for colour and compactness of growth, the Leicester Red. Very fine and firm are the Sulham Prize Pink and Carter's Incomparable Crimson, both distinct kinds, tall in growth and robust in habit. Another good-looking sort is the Manchester Red, of which there are several synonyms. Among Whites, the best and only true dwarf kind is the Incomparable White, commonly known also as Sandringham White; this is compact, firm, and crisp. Next in height and quality may be reckoned Veitch's Silver White, a good firm variety, the best of the tall kinds being Wright's White Grove and Seymour's Solid White.

Forty-seven reputed varieties were tried at Chiswick in 1874, and of these twenty-three were Red and twenty-four White. These, by the detection of numerous synonyms, were reduced by the committee to twenty, viz., seven Red varieties and thirteen White, which it was decided were distinct. The following were the principal varieties tried and their synonyms:—

Red Varieties.—Manchester Red (syns.—Sulham Prize Pink, True Manchester, and Giant Red).—Plant of strong and vigorous growth; height, 3 ft. 4 in.; head compact; average girth, 12 in.; heart very solid; stalks broad, thick, and fleshy; a very excellent sort, and stands the winter well. This is the largest variety. Ivery's Nonsuch (syns.—Osborn's Select Red, London Market Red).—Plant of strong and vigorous growth; height, 3 ft.; head compact; average girth, 12 in.; heart very solid; stalk very solid, broad, thick, and crisp, and of a fine nutty flavour. One of the best. Kimberley's Red (syns.—Improved Solid Red, Stuart & Mein's Solid Red).—Plant of regular, but somewhat spreading, habit of growth; height, 2 ft. 6 in.; head compact; heart very solid; stalk broad, thick, and crisp, of fine flavour. Carter's Incomparable Crimson (syn.—Carter's Incomparable Dwarf Crimson).—Plant of close, compact growth; height, 2 ft. 6 in.; head very compact, deep rosy-pink; heart very solid; stalk thick and fleshy, and of fine quality. This is the dwarfest red Celery, and a good hardy variety to stand the winter. Webster's No. 1 (syn.—Webster's No. 1).—Plant of somewhat slender growth; height, 2 ft. 10 in.; head compact; average girth, 10½ in.; heart solid; stalk solid, thick, very crisp, and of good quality. Leicester Red (syn.—Major Clarke's Solid Red).—Plant of erect, compact growth; height, 3 ft.; head very round and compact; average girth, 12 in.; heart very solid, blanching well for about 12 in.; the inner stalks broad and thick, very crisp, and of a fine nutty flavour. One peculiarity of this Celery is, that of the core rising about 2 in. in the heart, as if it were to run to seed. This core portion is by many considered the best part. This variety, from its close, compact growth, blanches easily, and is the best Celery for autumn or early winter use, but it does not stand the winter so well. Wright's Improved Grove Red.—Plant of the same appearance as Leicester Red, but somewhat dwarfier; the head is also larger, being 18 in. in circumference; heart large, very solid, and good. This is an excellent sort.

White Varieties.—Grove White.—Plant of strong and robust growth; height, 2 ft. 9 in. This is an exact counterpart of the Grove Red, but white, and possessed of the same excellent qualities. Does not stand the winter so well as other sorts. Incomparable Dwarf White (syns.—Sandringham, Dean's Compact White).—Plant of very dwarf and compact growth; height, 21 in.; head very compact; average girth about 10 in.; heart solid, and of a pure white; the stalks, broad, thick, fleshy, crisp, and of fine quality. This is one of the best sorts, its close dwarf growth renders it easy to blanch with remarkably little earthing-up. It is good for early use, and also stands the winter well. Seymour's White (syns.—Goodwin's White, Northumberland Champion White).—Plant of spreading

habit; height, 3 ft.; head large; heart solid; stalks broad, thick, and fleshy. This is the largest-growing White Celery, and apt to become pithy if very strongly grown. Prizetaker White (syn.—Veitch's Silver White).—Plant of slender growth; height, 3 ft.; head large; heart loose; stalks rather soft but of fine flavour. Dixon's Mammoth White.—Plant of compact, robust growth; height, 2 ft. 3 in.; large girth, 14 in., heart, very large, blanching about 11 in., somewhat soft, but excellent. It stands the winter well. Haywood's White Queen (syn.—Stuart & Mein's Giant White; Goodall's Flat-stalked; Webster's White).—Plant of robust growth; height, 2 ft. 9 in.; head large; heart solid, blanching in about 14 in.; the stalks very large, broad, thick, and fleshy, but without much flavour. An excellent sort to stand the winter. Veitch's Solid White (syn.—Danesbury).—Plant of close compact growth; height, 2 ft. 6 in.; head compact; girth 11 in.; heart, very firm and solid, blanching from about 12 in.; the stalks broad, thick, crisp, and tender. A very excellent variety, and stands the winter well. Boston Market.—Plant dwarf, from 18 in. to 20 in. high; leaflets small, pointed and sharply serrated. This variety is not used to produce a single head, like the ordinary Celeries, having the peculiarity of forming a number of side-shoots or small heads, which are blanched. It is suited for early work, and it begins to run to seed almost as soon as planted out. Frise, Curled or Garroshing.—Plant of loose growth; height, about 2 ft.; leaves very pale green, and deeply cut or curled almost like Parsley. It is very ornamental. The leaves may be used for garroshing, but this variety is of no other use. It is very tender, and runs early to seed.

Celeriac is a kind of Turnip-rooted Celery, the root of which is only used. It is principally used in soups, but is sometimes boiled and eaten as a common salad. It is little grown in England, but the Germans grow it largely and are very fond of it. The seed should be sown in April under a hand-light, or on a warm border pricked out in the same way as Celery plants, and finally planted in rows on an open border 12 in. or 15 in. apart each way. Trenches are not required for Celeriac, neither should the plants be buried deeply in the soil, but the root allowed to swell above the surface, after the same manner as the Turnip. When the plants have attained their full growth it is well to cover up the bulbs with soil, in order to render them whiter and more delicate than they otherwise would be. A rather light, but rich sandy soil is suited best to the growth of this plant. S.

Planting Early Potatoes.—Experience during the last few years has taught us that planting Potatoes too early in the season is both a waste of time and labour, and a source of bitter disappointment. It may therefore be well to warn intending planters of this useful vegetable to defer planting until from the second to the third week in April. Many plant early, thinking to be before their neighbours, but they are often greatly mistaken. The best plan is to lay out the tubers singly in a cool Vinery about Christmas, or in any out-house protected from frost, and where abundance of light and air can be admitted on every favourable opportunity. Thus treated, by planting time they will have made fine, strong, green shoots, when they should be taken up carefully, putting them into drills about 3 in. deep, when they go on growing at once, and will all be fit for lifting at the same time, and will prove much more satisfactory than those planted early and cut down by frost in an early stage of their growth.—S.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Protecting Canliflowers.—Many expedients are adopted for preserving Canliflower heads in good condition and free from frost; but if stored in cellars or close buildings the flavour is soon spoiled, and in frames they require nearly as much protection as in the open ground. The best plan is to tie up the leaves and pack dry Fern or litter amongst them, when they will be in every way better than when stored in any other way.—JAMES GOSCH.

Maize as Food.—At the meeting of the Paris Academy of Medicine, held in November last, M. Fés, of Padua, enlarged on the merits of Maize, or Indian Corn as an article of food. He gave comparative tables to show that Maize is superior to all other cereals in fatty matters, and it may be considered as a perfect food. He also replied to objections that have been made to Maize, accusing it of giving rise to certain diseases, notably pellagra, and demonstrated that the penicillium glaucum, which is supposed to originate this disease, never attacks Maize unless it is damaged. Green Maize deserves the attention of cultivators generally as a delicate and excellent vegetable.

Preserving Stakes.—Would some of your readers kindly inform me as to the best method of preserving wooden stakes or tallies from decay?—W. S., *Broughly Ferry.*

THE PLACE DU LOUVRE.

WELL-PLANTED open spaces, very near handsome buildings, are as yet so uncommon in our cities that we like to take every opportunity of showing their advantages. The airy space and the trees are valuable for their own sakes, but, in addition, there is the very pleasing contrast between the trees and the lines and ornaments of the buildings when the trees come between the eye and the buildings without obscuring them. Happily the recent plantations in Paris are not clipped as the trees are, yet at Versailles and Fontainebleau; we have never noticed the charm alluded to where the trees are clipped into the form of walls, &c. The illustration shows the comparatively young plantation in the Place du Louvre, Paris. In planting near fine buildings it is important to plant so that the trees may only

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Daphne indica is such a general favourite for its deliciously-scented flowers, that no amateur should be without it. It is so much prized for its fragrance that the plants, in consequence of being cut for their blooms, are often prevented from attaining a good size. If in strong, vigorous condition, the growths of last year will have at their bases stout buds for about six of the leaves down from the flower-bearing shoots; when this is the case a good portion of the flowers may be cut with a leaf or two attached to them, as the buds above mentioned will push growth; but, on the other hand, if the growths made last year be weak, and there be no latent buds, the flowers ought not to be cut with any wood, or in all probability the shoots from which they are cut will not grow at all, thereby causing the plants to decrease in size instead of making their ordi-



Place du Louvre, Paris.

partially veil the buildings from the most important points of view and the streets and places near.

Floating Melon Gardens.—In the beautiful Valley of Cashmere, among the Himalayan Mountains, lies a lovely lake called Dal. Floating about on its surface, sometimes carried by the winds from one end of the lake to the other, are numerous small islands, on which grow the finest Cucumbers and the most luscious Melons known. The way in which these floating gardens are made is very curious. All about the main shores of the lake grow quantities of Reeds, Sedges, and Water Lilies. When these grow very thickly together people cut them from the roots which hold them near the shore. The leaves of the plants are then spread out over the stems, making a sort of trestle-work to support the soil with which it is next to be covered. After this has been done the seeds are planted and the floating garden is left to care for itself until the fruits are ready for picking.—“St. Nicholas.”

any progress. It should be kept at the warmest end of the greenhouse through the winter, and care must be taken not to over-water it, as at no time can it well bear any excess of moisture at its roots. *Deutzia gracilis* is a very useful subject for decoration as well as for furnishing cut flowers. If a few plants be ranged at the warm end of the house they will soon come into bloom.

Old Fuchsias that are resting under greenhouse stages or in similar places should be slightly watered and not allowed to become dust-dry, for if this precaution be neglected many of their roots will be killed. Now is the time for pruning them, and they should not be left too high, 18 in. above the pots being sufficient; the side-shoots should be shortened to about two or three eyes from the principal stem; if left higher than this there is a difficulty in getting them well clothed with blooming growths down to the bottom. It is advisable always to prune Fuchsias some time before they are to be started, as if this operation be deferred till after the commencement of their growth, they are liable to bleed, and thereby become very weak. If it be desired to have a portion of these old plants in bloom early, they should be now placed in a light situation, but not in heat.

Cyclamens are invaluable for winter-blooming; they must be well attended to with water, or they will not thrive well; give them plenty of light—a shelf over the path will be found a good place for them. Of herbaceous Calceolarias, the earliest-sown plants should now be put into the pots in which they are intended to bloom; they are very quick-rooting subjects, and lay hold of the new soil in a short time; they are much the best moved to their flowering pots early; let the soil used be of a light, rich description, containing a good proportion of leaf-mould, of which soft-wooded plants are extremely fond. More Hyacinths, Crocuses, and Narcissus, should be put in heat to bring them into bloom; before this, however, see that they have plenty of roots, for their flowering satisfactorily in a great measure depends upon the quantity of these that they possess. Let them be near the glass so as to obtain all the light possible, or the flowers will be poor and weak.

Miscellaneous Vegetables.—A box of Mustard may be sown every week or so in the stove or forcing pit, if a successional supply be desired, for when a longer time elapses between the sowings it gets tough; some plain Cress may also be put in. Should frost occur, care must be taken that Potatoes, Carrots, and Beet in sheds do not suffer; the best protecting material is dry litter or straw. It is a good plan to get in and prepare Pea and Runner Bean sticks in good time; if this work be done early it is an advantage, as later on there will be found much other work requiring attention.

Potatoes.—Those amateurs who are without hot manure or any fermenting material may still have Potatoes quite a month earlier than they otherwise could by the use of a frame made of Lin. boards and covered overhead with mats, either straw or bast. A frame of this sort some 10 ft. or 12 ft. long and 6 ft. broad will hold a quantity of Potatoes, which will be found very useful. Select for planting here some good hardy kind, such as Myatt's Ash-leaf or Hammersmith Kidney; they ought to be immediately put in shallow boxes, having in the bottom 2 in. of soil, in which set the Potatoes, keeping the sprout ends upwards and putting a little soil between them; they should then be placed where they can receive a little warmth under a greenhouse stage or in a warm room. Until they begin to grow the light should be kept from them. When they commence growth let them have plenty of light to keep them stout; treated in this way they will make favorable progress. They may occasionally be sprinkled with a little water to encourage them to sprout; they can be planted out when the sprouts are 2 in. or 3 in. long.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

January 15.—Digging herbaceous border and among bedded Roses. Sowing six lights of early French Forcing Carrot intermixed with Radishes; also a little Incomparable Celery in heat. Potting some Standard Roses for next year's forcing; also some Beans, placing them in second Vinery, and a third batch of Potatoes placed in slight heat. Pricking off Lobelias—five plants in a small 32-sized pot, and placing them in heat. Putting in Vine eyes; also cuttings of Purple King Verbena, Chrysanthemums, Alyssum, Salvia splendens, Heliotropes, and Fuchsias. Planting Potatoes from pots in first pit on a bed of leaves; also some Lilacs in waste corner for cutting. Throwing out trenches and filling them with manure on which to plant Seakale for forcing next season. Planting Sweet Fays. Throwing out holes in which to plant Pear and Nut trees after having trenched the ground. Tying up first Muscat Vines in the main range after the buds have burst. Stringing Peas to keep off sparrows. Fumigating Gardenias and Calceolarias to keep down fly. Sending in winter Bon Chrétien and Colman Pears. Turning manure in order to get it heated for Potato pits. Emptying and re-filling another pit for cuttings, and putting in a layer of ashes. Sharpening Pea-sticks in bad weather. Pruning Roses on pillars.

Jan. 16.—Sowing 150 more pots of Mignonette. Potting Dendrobium Paxtoni and other Dendrobes in Moss and peat fibre. Potting Epidendrum rubescens, Lælia majalis, and Disa grandiflora in a cold house to which air is freely admitted. Putting cuttings of Salvia patens in heat; also some Gooseberry and Currant cuttings. Planting some Apple, Peach, Apricot, and Pear trees; also Raspberry canes. Putting in seventh forcing of Strawberry plants. Fumigating third Peach-house for black fly. Making new Mushroom-bed. Preparing a border for Parsley. The following is a list of Orchids that seem to do well at Mr. Backhouse's nursery in a greenhouse—*Odontoglossum maculatum*, *Epidendrum rubescens*, and *Lælia majalis*, these three both winter and summer. The following occupy

a common greenhouse in summer and slightly warm in winter, viz.: *Lælia autumnalis*, *Odontoglossum retusum*, roseum, membranaceum, and *Oncidium nubigenum*, anrosam, obryzatum. Plants ready for house decoration—*Narcissi*, Roman Hyacinths, *Heliotropes*, *Talips*, *Mignonette*, *Pelargoniums*, *Hyacinths*, *Lilacs*, *Sweet Briers*, *Rhodoras*, *Dentzias*, *Azaleas*, *Primroses*, *Cyclamens*, *Poinsettias*, *Callas*, *Lilacs*, *Lilies of the Valley*, and *Dielytra*.

Jan. 17.—Digging amongst bush fruits. Sowing 300 pots of French Beans and placing them in second Vinery. Potting *Nemophila* and *Saponaria* for baskets. Making rafts for *Saccolabium ampulaceum*. Putting in cuttings of *Gnaphalium lanatum*, and also of *Begonias*. Planting out *Schizostylis coccinea*. Wheeling a portion of the rubbish-heap on to the Gooseberry quarter. Making pegs in wet weather for lower beds. Cleaning Onions.

Jan. 18.—Digging vacant ground. Potting off autumn-struck *Petunias*; also Cucumbers, plunging them in pits, keeping them at 70°, and covering them at night. Shaking out and repotting *Caladiums* and *Hedychiums*. Shifting a autumn-struck *Centaureas* into 6-in. pots. Striking cuttings of *Lobelias* in heat; also cuttings of *Oxalis* and *Heliotrope*. Shifting herbaceous *Calceolarias* into larger pots. Transplanting some Ghent *Azaleas* in order to prepare them for forcing. Putting in additional forcing material, viz., Anne Boleyn Pinks and a row of *Cinerarias* along front of second Peach-house. Manuring Roses liberally; also any Plum trees that annually bear heavy crops, giving two barrow-loads to each. Turning the rubbish-heap in order to hasten decay so that it may be ready for use when wanted.

Jan. 19.—Digging borders in Rose garden. Potting Veitch's Ashtop Potato for wall sides; also autumn-struck *Fuchsias*, and placing them in heat. Pruning Fig trees, and starting house at 58° at night and 63° by day fire-heat. Putting in more Seakale and fourth crop of Rhubarb. Still sending in *Asparagus*, *Seakale*, *Mushrooms*, *Broccoli*, and *Spinach*. Putting seed Kidney Potatoes in hampers in loft, placing them end upwards and singly so as to get strong sprouts. Putting ashes over Peas just coming up. Pruning wall Roses, having finished those on trellises. Planting some Wine-sour Plums.

Jan. 20.—Sowing *Cyclamen* seed; also Little Gem Peas under cases. Taking offsets from *Echeveria glauca* and putting them into slight heat. Potting *Gladioli* in two parts loam, one part manure, and one part peat and sand. Putting *Zygopetalum maxillare* on Tree Fern stumps and placing them in a cool house. Putting in some cuttings of *Monochetum ensifolium* and plunging them in heat; also of Tree Carnations. Planting some Chives, Sorrel, and Royal Albert Rhubarb. Hyacinths coming into flower freely. Raising first Muscats in main range to 63° at night, nearly all shoots from 1 in. to 3 in. long showing fruit.

Orchids.

It is at all times desirable to have the materials to be used in potting Orchids placed under cover immediately they are received, for if the peat, for example, be left in the open air, unless it is stacked in quantity and thatched, it becomes saturated with water, and the most important part of it, the fibre, decays. Those, therefore, who have their peat out-of-doors, except it be well protected, should at once place it under a shed, in order that it may get dry by the time it is wanted. If very wet, it should not be stowed away in bulk, but may be built up one turf wide round a shed used for other purposes, a space of 3 in. or 4 in. being left between each turf to facilitate the drying process. That potting materials for Orchids should be comparatively dry before they are used is absolutely necessary, for they never thrive well when sodden about the roots. In the case of Sphagnum Moss the great object is to keep it as sweet as possible and in a living state; it should, therefore, be placed on a loft over some cold, airy shell, or a place should be made on purpose for it by putting some boards over the rafters. Care should be taken not to press Sphagnum when stowing it away, or to put too great a hulk of it together, otherwise it will die, turn sour, and when used injure the plants. Living Sphagnum Moss is in many cases a test of good culture, for it has frequently been said, with respect to the New Granada *Odontoglossums*, *Masdevallias*, and others, that if cultivators can only succeed in growing the Sphagnum, the plants potted in it will take care of themselves—a statement generally correct.—JAMES O'BRIEN.

Forming a Lawn.—What is best to do with a recently-turfed lawn, coarse and on a sandy subsoil?—B.—[Top-dress with half-inch finely-sifted loamy soil, and sow with a mixture of good Grass seeds suitable for light soil.]

THE FRUIT GARDEN.

ORCHARD FRUIT CULTURE.

I FEEL compelled to dissent from the statement that the best crops of fruit (standard fruits, of course) are produced in orchards under Grass. All my experience goes to show that so far from this being the case, it is exactly the contrary; and if the Grass orchards, say in Middlesex for instance, were compared with those in which the soil is cultivated for under crops, it would be found that the result was immensely in favour of the latter. If here and there in market gardens orchards be found where the trees are in a state of decay, it is either the result of gross neglect in the cultivation of the soil and attention to the trees, or it is caused by old age and an entire exhaustion of the soil for all fruit-bearing purposes. The characteristics of Grass orchards are commonly—Mossiness, canker, unripened or half-dead growth, the fruit small, and if sometimes abundant, yet worthless. Compare with this the characteristics of any good market orchard where the soil is annually top-dressed, forked over, and cropped with bush fruits, salads, Violets, Wallflowers, or bulbous and spring flower roots. These are the crops commonly grown under old orchard trees where the tops have met and vegetable crops would not thrive. Here the trees are full of vigour, clean, and healthy, producing enormous crops of good market fruit that can always be sold at a remunerative profit. In my locality there are hundreds of acres of such orchards, and the growers would simply laugh at a proposal to place them under Grass. I am entirely satisfied that no body of men in the kingdom are more alive to the value of the surface culture of the soil beneath fruit trees than market gardeners. One has but to compare the crops produced in such market orchards as those of Mr. Dancer, at Sutton, with any of the best found on Grass, to realise the immense advantage to the crops found in surface cultivation, dressing, and cropping. For the production of permanent orchard trees, I find our market growers now give the preference to maidens, as sooner producing good fruiting trees. It is their impression that these develop into good trees earlier than two-year or three-year trees, because the removal from the nursery at so early an age induces an earlier and better establishment in their permanent homes; also that these do not require staking and are not affected by the wind, while, as they grow, their root-hold renders them more capable of withstanding the wind later on than is the case with older-planted trees, all of which require stakes and a larger amount of attention than it is possible to give them. With maidens it is possible to have any form of growth the grower may prefer; but older trees must have been previously fashioned into shape. In sheltered orchards the standard is still preferred; but where winds prevail, a dwarfed form of growth proves most advantageous. For the ultimate success of the trees for the first few years a little careful pruning is requisite, and protection for the stems from hares and rabbits, and from careless labourers. When once established and in fruit, an occasional thinning of surplus branches is all that is needed. Small trees that produce a few pecks of fine fruit are all very well, but it is the large standard orchard trees, producing crops of several bushels, that pay the grower.

A. D.

THE PHYLLOXERA AND INSECTICIDES.

WE have received some reports communicated to the French Academy of Sciences dealing with the attempts which have been made during the last three or four years to arrest the mischief done by this insect, and ultimately to destroy it altogether by means of some potent drug. It is obvious that the remedy to be employed must possess two qualities at starting, viz., it must destroy the insect, and it must not damage to any great extent the Vine. But, further, it is not sufficient that when put in close contact with the roots of a plant—as in a pot—it should prove fatal to the insect, it is necessary, if the remedy is to be of real practical value, that it should reach and destroy the Phylloxera on all the parts attacked by it in Vines which are planted out in the open air. This, according to "Nature," is the real difficulty to overcome, as the remedy, be it in the form of solution or of vapour, cannot easily permeate the soil—sometimes clayey, sometimes sandy—on which the Vine is growing, so as to reach and act

upon the smaller root branches, whose nutrition the Phylloxera diverts into itself. M. Mouillefert, a professor at the School of Agriculture at Grignon, was the person delegated by the Academy of Sciences to make the necessary experiments for the purpose of determining what agent was the most practically applicable to the destruction of the Phylloxera, and the account of the numerous substances employed by him with varying results fills no less than 200 pages of a memoir presented to the Academy of Sciences. It is not our intention here to do more than give a brief résumé of the results at which he arrived. He divides the substances used by him into seven groups, the first of which was composed of manures of various kinds, such as guano, superphosphates, farm manure, &c.; the second of neutral substances, as water, soot, and sand; the third of alkalis, as ammonia and soda; the fourth of saline products, amongst which were the sulphates of iron, copper, zinc, potassium, and ammonia, alum, and sea-salt; the fifth of vegetable essences and products, as decoctions of Hemp, Datura, Absinthe, Valerian, and Tobacco; the sixth of empyreumatic products; and the seventh of sulphur compounds. It was only with some of the substances contained in this last group that really satisfactory results were obtained, and it is to M. Dumas, the permanent secretary of the French Academy of Sciences, that the credit is due for suggesting the employment of the alkaline, sulpho-carbonates of potassium and sodium and those of barium and calcium. All the other classes of remedies mentioned above were either without effect on the Phylloxera or, in destroying it, also destroyed or damaged the Vine. The sulpho-carbonates, which were carefully studied by the great Swedish chemist Berzelius, are obtained by combining the alkaline mono-sulphides with the bisulphide of carbon, are either liquid or solid, and emit a powerful odour of sulphuretted hydrogen and bisulphide of carbon. The alkaline sulpho-carbonates in the solid state are of a beautiful reddish-yellow colour and deliquescent, but are not easily obtainable in that condition; the sulpho-carbonate of barium can be easily procured, however, in a solid state, and presents the appearance of a yellow powder, but little soluble in water. The sulpho-carbonates decompose under the influence of carbonic acid, forming a carbonate, and evolving sulphuretted hydrogen and bisulphide of carbon. These two latter substances are gradually liberated, and as they have a very powerful effect on the Phylloxera, one can understand that the sulpho-carbonate, placed in the ground, may prove, by its slow decomposition, a powerful insecticide. In the case of the sulpho-carbonate of potassium, over and above its toxic effect, it has a direct invigorating influence upon the Vine, as the carbonate of potassium is an excellent manure.

The employment of the sulpho-carbonates as a means for the destruction of the Phylloxera was suggested to M. Dumas by the clearly-recognized need that there was of some substance that would evaporate less quickly than the bisulphide of carbon. He saw that it was desirable to apply the insecticides in some combination which would fix them and only allow them to evaporate gradually, so that their action might continue long enough in any one place to infect with their vapours all the surrounding soil. But the task of eradicating the Phylloxera has by no means been accomplished by the mere discovery of the value for the purpose of these substances; there is the further difficulty of applying them to the Vine in cultivation. One thing seems certain, that in order to render the sulpho-carbonates practically efficacious in killing the insect, it is necessary to use water as the vehicle by which they may be brought to all the underground parts of the plants, and that the best time of year for their application is the winter or early spring, when the earth is still moist and the quantity of water necessary to be brought on to the ground by artificial means is consequently less. Mixed with lime in the proportion of two parts to one, these sulpho-carbonates give a powder which can be spread over the ground before the heavy rains, that is, between October and March, and which will probably prove itself very efficacious.

The conclusion at which M. Mouillefert arrives at the end of his report is that the efficacy of the sulpho-carbonates is proved, and all that is necessary is to bring to perfection their employment in agriculture, which can only be accomplished by the intelligence and practical knowledge of the Vine-grower who is well able to discover the economic processes of culture which are conducive to their successful application. He ends by saying that "Science has accomplished its mission, and it remains for Agriculture to fulfil its part" in the eradication of the Phylloxera from the vineyards of France.

Starmer Pippin Apple.—This is an Apple that cannot be too highly recommended, and one which ought to be in every collection of fruits. I have found it to be a strong grower and a good cropper. It is good in flavour, and will keep without shrivelling from February to June. Those who are at this time of year making new plantations of fruit trees should not omit this, in all respects, excellent Apple.—J. C. S. W.

STANDARD FRUITS OF AMERICA.

THE "Country Gentleman" compiles from the "Fruit Catalogue" of the American Pomological Society, the most popular fruits of the Union, as follows:—"We have been much interested in looking over some portions, and counting the votes given in the different States to the most popular sorts as they are exhibited by the single and double stars on the pages of the catalogue, those recommended for cultivation being designated by a single star, and such as possess great superiority by double stars." Taking the list of

APPLES.—Amongst these we find the greatest number of votes for Red Astrachan and Maiden's Blush—the former with 13 single and 21 double stars, the latter with 22 single and 11 double stars. Yet neither of these are of high quality or flavour; but they succeed in nearly all the States of the Union, and are eminently profitable in many. On the other hand, the Swaar and Eeppus Spitzenburg, which stand pre-eminently for high flavour, have respectively only 9 and 13 votes, all single stars but one—showing that where growth and productiveness are absent, excellent quality is not enough. Local popularity is indicated in the case of the Baldwin and Rhode Island Greening at the East, and Ben Davis and Winesop at the West. Baldwin has 11 double and 7 single stars, nearly all in the North-eastern States; Rhode Island Greening has 9 double and 8 single stars, confined to nearly the same territory; Ben Davis and Winesop have nearly the same votes at the West. Among other popular sorts we observe the following:—American Summer Pearmain, 18 single and 5 double; Carolina Red June, 14 single and 8 double (mostly South and West); Duchess of Oldenburg, 13 single and 10 double; Early Harvest, 22 single and 8 double; Fameuse, 16 single and 8 double; Gravenstein, 21 single and 7 double; Hubbardston Nonesuch, 13 single and 7 double; Jonathan, 12 single and 6 double; Sweet Bough, 19 single and 6 double; Roxburgh Russet, 11 single and 6 double; Summer Rose, 20 single and 3 double; Tallman Sweet, 17 single and 5 double; and Twenty-Ounce, 14 single and 4 double.

PEARS have a more extended range than Apples, and many succeed in every State of the Union. Bartlett, of course, leads the list, having 15 single and 21 double stars. Seckel has 19 and 16, Beurré d'Anjou has 12 single and 18 double. After these the most popular are Flemish Beauty, Lawrence, Howell, Winter Nelis, and Doyenné d'Été, Duchesse d'Angoulême, and Belle Lucrative. The following do well and are recommended in many States, but do not stand so high in character as those preceding, namely, Giffard, 21 single and 4 double; Buffam, 25 single and 1 double; Onondaga, 22 single and 2 double; Osband's Summer, 19 and 1; Tyson, 20 and 2; Vicar of Winkfield, 20 and 3.

GRAPEs.—The Concord is above all others for general popularity, from Nova Scotia to Texas. Thirteen States are quoted as recommending it for general cultivation, and twenty more give it double stars. The next are Delaware, Hartford and Ives. Catawba and Norton's Virginia succeed in the South-west; Clinton has a moderate reputation in a large number of States; and Walter is recorded as promising well in no fewer than 21.

PEACHES.—The most generally esteemed of Peaches are Crawford's Early and Crawford's Late. Next in popularity are Oldmixon (a freestone), Oldmixon (a clingstone), Large Early York, Grosse Mignonne, and Cooledge's Favourite. The following are most highly esteemed in the South and South-west, viz.:—Columbia, Eaton's Golden, Heath (clingstone), Lady Parkham, Lemon (clingstone), Oldmixon (clingstone), and Susquehanna.

CHERRIES are confined to the Northern and Central divisions of the Union. None succeed in any of the Southern States, although a few single votes come from Arkansas for some of the Dukes and Morellos. In regions in which they succeed, the Early Richmond takes the lead for general adoption, followed by Black Tartarian, various Morellos, and May Duke.

APRICOTS are confined mostly to the Middle States, and Moorpark, Peach, and Early Golden are most widely approved.

STRAWBERRIES.—No variety approaches the Wilson for general popularity. Ten States gave it single stars and twenty-two double. Next in order are Triomphe de Gand, Charles Downing, Longworth's Prolific; and after these, Agriculturist, Hovey's Seedling, Downer's Prolific, and Green Prolific.

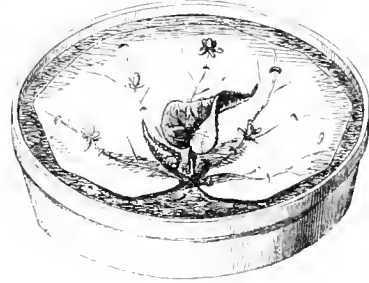
RASPBERRIES.—Mammoth Cluster takes the lead among Raspberries. Philadelphia gives a large number of single votes; Franconia and Clark about the same. At the east, Orange and Knevett's Giant have several votes.

BLACKBERRIES.—The Kittatinny is the most generally approved among the Blackberries, this and the Wilson standing alone. New Rochelle have several single votes.

This meagre summary does no justice to the catalogue, and only points out a few of the fruits among those which have been extensively tested in the different States.

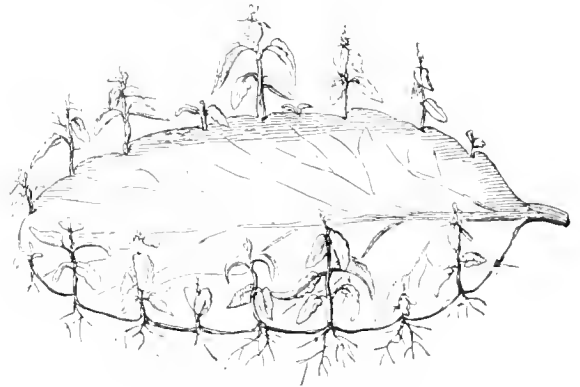
LEAF PROPAGATION.

THIS method of increasing plants is available in many cases when seeds are unobtainable and when ordinary stem cuttings are either useless or not to be had. Quite recently we hear that Hyacinths may be readily increased by leaf-cuttings, and the same practice has also been successful in the case of Hippeastrums and other Amaryllids, Begonias, many Melastomads, Gloxinias, and other Gesnerads; Hoyas, Bryophyllums, and other succulent plants are best multiplied in this manner, and this is especially the case with some Echeverias, Pachyphytums, and Sempervivums of various kinds. Leaf propagation has also proved very successful in the case of Cephaelis Ipecacuanha in the Indian plantations, where it is now extensively grown, and this method of increase is a valuable auxiliary to the root or rhizome propagation devised so successfully by Mr. Jas. McNab in the Edinburgh Botanic Garden a few years



No. 1.—Begonia-leaf propagation.

ago. Apart from the plants which are now known to be easily multiplied by leaf-cuttings, there are doubtless many others which might be increased in quantity by this simple method if experiments were made with them. Leaf-cuttings of Fuchsias, for example, root very readily, as do also Hoya and Æchynanthus leaves, and when we go a step farther and include the petiole with the axillary bud at its base, and a slice of the bark of the old stem, then we find that Roses, Zonal and Show Pelargoniums, Ficus elastica, and its allies, and very many other Exogenous plants may be readily increased in this manner. Even the modified petiole or leaf-stalk has, in many Endogenous plants, the power to multiply the plant from which it is taken, as in the scales of Lily and other similar bulbs, or the pseudo-bulbs of many Orchids. Among the Cycads, again, the scale-like bases of the petioles



No. 2.—Plant-producing leaf of Bryophyllum.

which clothe the stem will develop their latent buds, and thus form plants if removed and placed in a gentle bottom-heat. The illustration (No. 1) shows a Begonia leaf pegged down on a pan of light sandy soil, before which the principal veins have been nicked or slit with a sharp knife, and it is at these slits and at the base of the leaf where it was severed from the plant that a conglomeration of thickened or descending sap is formed, and from whence the young plants have their origin. Perhaps the best example of spontaneous leaf propagation is that afforded by the leaves of Bryophyllum, which, on falling

from the plant on to a moist surface, develop their marginal buds into young plants, as shown in the engraving (No. 2); indeed, we have seen this happen when the leaf has been suspended in the window by a thread, but the young plants soon cease to thrive unless they are placed in a more suitable position, so that they are enabled to root and obtain nourishment from the soil. B.

CINERARIAS AT CHRISTMAS.

It has been asked (see p. 18) "at what time should Cinerarias be sown to be in flower at Christmas?" As we generally have them in abundance by that date, a few remarks on the subject may not be unacceptable, although the routine of cultivation is similar to that usually adopted. We sow a small quantity of seed in a moist heat in February, and as soon as the young plants are large enough to handle they are pricked off into boxes in light sandy soil, and replaced in heat until they have become well established, when they are potted off singly into 60-sized pots. As by that time the atmospheric heat will be sufficient for them, a close frame set on coal ashes is the best of all places for them, and during the hottest months a shaded situation such as that close to a north wall is best. They should be shifted into larger pots before the roots have become too much matted together, giving larger or smaller shifts according to the size of the plants required. Plants fully 2 ft. in diameter may be grown in 8-in. pots, and if allowed plenty of space, and at all times kept close to the glass, they should not exceed 1 ft. 6 in. in height, lanky, drawn-up plants being scarcely worth house-room. The compost which we employ consists of one-year-old turfy loam, decayed cow manure and sand. The drainage forms an important matter, for although Cinerarias are moisture-loving plants, even the slightest amount of stagnant water often proves fatal to them. They must never, however, be allowed to become dry, but by keeping the ashes on which they stand always moist, much less water will be necessary. By the end of September they should be sturdy plants well established in their flowering pots, and should be transferred to a light, sunny position, such as a pit in which Melons or Cucumbers have been grown, levelling the soil, and surfacing it with coal ashes, in order to keep down worms; under such circumstances they will succeed better than on dry, airy stages, flower-stems will quickly appear, and the plants will be dwarf and well branched. Fire-heat, only sufficient to exclude frost, should be employed, as they dislike forcing; and, as regards insects, our plants are seldom attacked until they are in flower, when we are compelled to place them in both a warmer and drier atmosphere than is congenial to them. Cinerarias in the form of single specimens, when well grown, make excellent vase plants for indoor decoration, or for mixing with forced plants in conservatories; the various shades of blue are exceptionally attractive in contrast with Deutzias and similar plants. If seed be procured from good varieties, so excellent and varied is its produce that no other means of propagation are necessary, except in cases in which a collection of named varieties is grown for special purposes. Winter need not be dull as regards flowering plants where advantage is taken of the resources available, and among these the Cineraria plays an important part. J. G.

CYCLAMENS WITH SMALL FLOWERS.

"J. E.'s" CYCLAMENS appear to be robust in growth, or I should attribute their unsatisfactory condition to defective root action. I should however, recommend an examination of the roots, which may be easily done without in any way disturbing the ball. If the fibres appear white and healthy then the fault will not lie there; if on the contrary, they are black and soft to the touch, too much water has been given. I should, however, rather attribute the imperfect formation of the flowers to a confined atmosphere. The present season has been so dark and at the same time so mild, that Cyclamens have required all the air possible to keep them from becoming drawn. They cannot, in short, be kept in health, and the flowers of even the most vigorous plants will invariably become crippled, if they do not obtain abundant and constant ventilation on all favourable occasions. I should advise "J. E." in any case to keep his plants perfectly cool,

leaving on constant air night and day for a time in mild weather, and giving no heat, unless compelled to do so on account of frost. I should discontinue the application of manure water for the present. Indeed its use at this time of the year is always attended with danger to the root; weak soot water may however occasionally be given, taking care not to water before the soil is quite dry, and then giving enough to ensure the thorough moistening of the ball, as insufficient moisture at the root will produce undersized blooms.—JOHN CORNILL, *Esq.*

— Being a successful cultivator of Cyclamens, my advice may be of some service to "J. E." (see p. 3). My plants will be at their best about the middle of February, and as soon as they have done flowering, I put them on a shelf in the greenhouse, which is light and airy, giving them plenty of water until the leaves begin to turn yellow. I then remove them to a cold pit, plunge them in ashes, and give less water, but never let them become dust-dry. In this state they remain until the last week in August, when I shake them out and re-pot them. I then put them back into the same pit, and water carefully at first, but after they begin to grow I water them freely until they show flower; I then give them a little liquid manure, keeping them in the pit or frame until frost sets in, when I place them in a Vinery on a shelf, giving them plenty of water. By this treatment I obtain good foliage and fine flowers. In my opinion "J. E." injured his plants in the spring of last year by keeping them growing when they ought to have been at rest.—J. M., *Usk.*

— It is difficult to answer "J. E.'s" question when he says that his plants are well furnished with foliage but have small flowers. Some varieties do not at first show size of bloom, but enlarge very much after the petals have reflexed. I should advise two or three of the plants to be turned out in order to see if the ball of earth is dry or the roots rotted from over-watering. In the former case, the plants must be plunged in water for some hours; in the latter, the wet soil should be removed and the plants re-potted, giving as small a shift as possible in three-eighths of yellow loam, one-eighth of leaf-soil, and one-half of coarse white sand.—BERKS.

Garrya elliptica in Flower.—What is the name of the beautiful evergreen shrub enclosed? It has only flowered this season for the first time during three years: being much overshadowed by a Scotch Fir, it has had but little chance. The Fir, however, is about to be removed, so as to give the shrub in question a proper share of light. What is the best time and manner of propagating it, its native habitation, and when was it introduced into this country?—P., *Farnbro.* [The *Garrya elliptica* (the name of the shrub sent) is best propagated by layering it in autumn, *i.e.*, when seeds are not obtainable from female plants, which are much more uncommon than the male kind sent. The *Garrya* was introduced from North-west America and California by Douglas in 1828. A female plant of it fruits freely in Mr. Finzell's garden at Clevedon, near Bristol. The female plant was introduced by Hartweg in 1848. It is one of the most beautiful of all winter-blooming evergreen shrubs.—ED.]

Culture of Mrs. Pince's Black Muscat Grape.—This Grape, referred to at p. 17, has, under suitable cultivation, no equal with respect to quality as a late Grape; but, unlike some free-bearing kinds, it will not succeed under any sort of treatment. Like the Muscat of Alexandria, if properly treated, it well repays the cultivator for his extra care. It requires a long season, and therefore every spur should be pruned as the fruit is cut, in order that the Vines may be started as early as possible, that is, when the Grapes hang late. This gives the fruit a better opportunity of getting well ripened before the dull autumn months set in, and improves both the flavour and keeping qualities. It succeeds best in a border composed of good, strong, fibrous loam, with a liberal mixture of old lime rubbish, or refuse brick broken similar in size to stones laid on the roads; be sure, too, that the drainage is perfect, as this Vine requires a very liberal supply of water at the roots. All through the growing season it is almost impossible to give too much, provided the border is well drained. It is naturally a free grower, and requires liberal support to produce well-expanded foliage; in fact, the deficiency of colour in the fruit, and the contracted foliage so often met with, are caused by a short supply of water at the roots.—JAMES SMITH, *Waterdale.*

The Vine Phylloxera.—In the autumn of 1875 I purchased from a nursery six Vines in pots for forcing in January, but after they grew into full leaf, three of the plants unmistakably showed that something was wrong at the roots. I therefore had one of them shaken out of the pot, and I found that the roots were attacked with the Phylloxera. I then threw the other plants to the rubbish-heap to be charred along with prunings of fruit trees. I was lucky in not having had occasion to plant any of them out in the Vineries, but one of the worst-looking plants I reserved on which to try an experiment, keeping it apart from all other Vines. This plant I dosed in the course of the summer with paraffin oil, mixing about

1 pint of oil with 2 gallons of water. The oil was given three or four times, and although the foliage never acquired a healthy colour, the plant did not get worse till the leaves dropped in the autumn. I shall therefore see this year how it succeeds, and whether the Phylloxera is destroyed or wants more oil to complete its destruction. Should any Grape grower be unfortunate enough to have this pest on his pot Vines, I should recommend him to try this remedy, so that a decision may be arrived at as to whether paraffin is likely to prove a cure or not. Perhaps the only safe remedy where Vines are planted out is to stamp it out at once by uprooting the Vines, making fresh borders, and planting young ones; still if paraffin oil be found to be a cure, it might be tried in infested Vineries where the soil in the borders is not very deep.—WILLIAM TILLERY, *W. Beck.*

PLANTS IN BLOOM AT ENVILLE ON JAN. 1.

Stove and Greenhouse Plants.

Acacia albida	Chorozema	Eupatorium bitor-	Poinsettias
Azaleas, various	Camellias, various	tam	Plumbago rosea
Abutilons	Cyclarens	Gesneras	Roman and other
Amaryllis	Canellias	Heliotropes	Hyacinths
Belchynanthus	Corynanthemus	Habrothamnus	Rhododendrons
Loblobanus	Daphne indica	elegans	Sericographis
Agapanthus um-	Dentzia gracilis	Ixoras	Gnaphalium
bellatus	Ericas, various	Lilium tigrinum	Sprezza japonica
Begonias, various	Epacris, various	Libonia floribunda	Staticee
Bonvardias in var.	Branthetorum An-	Mignonette	Salvias
Browallia elata	dersoni	Narcissus, various	Tydaea Dispar
Cen. rojogon Lucy-	Epiphyllums	Pelargonium	Tremandra verti-
anus	Euphorbia jacquin-	zonale	cillata
Cinerarias	teflora	Primulas, double	Tropaeolums
Cytisus	splendens	and single	Tea Roses
			Vincas

Orchids.

Cypripedium	Laela anceps	Odontoglossum	Sarcobolium
insigne	Lycaste Skinneri	Instenvi	gigasium
lobatum	Oncidium grandio-	Leopodium	Vanda tricolor
nigrum	thecum	maculatum	Zygopodium
venustum	Oncidium leuco-	Habenopsis ama-	Mackeyi
Calanthe vestita	chilum	bilis	erinitor
rubra		Schilleriana	

G. H.

Plants in Bloom Out-of-doors in Ireland.—The past month has been the wettest I ever remember, but extremely mild. The following plants are in flower in my rock garden, which, though only 20 ft. above sea-level, is a good deal exposed, viz., *Erica carnea* and its suitable companion *E. carnea alba*, *Crocus Imperati*, *Ionopsidium acule*, *Anc. v. stellata*, *Dean's hybrid Primroses* and *Polyanthuses*, *Polygala Chalcidensis*, *Gentiana acaulis*, *Wallflower B-leoir Castle*, *Veronica Blue Gen.*, *Lithospermum prostratum*, *Hepatica Single Mauve*, *Saxifraga crassifolia*, *Scilla sibirica*, *Primroses Double White, Double Peach, and Double Purple*.—D. MCC. MAHONY, *The Island, Rochestown, Cork.*

Orchid-flowers and Fog.—Those who possess Orchids are rarely without a number of interesting and beautiful plants in flower. At the present time, when flowers of all kinds are not too plentiful, the occupants of the Orchid-house will compare favourably with the other houses, inasmuch as they are the more valuable because they come in naturally without forcing or coaxing of any kind, and consequently are more durable than those which have been stimulated into bloom. Among others now in flower may be named *Calanthe Veitchii*, *C. vestita rubra*, *C. vestita lutea*, the winter-flowering variety of *C. veratrifolia*, *Dendrobium nobile*, *D. Wardianum*, *D. crassinode*, *Odontoglossum Alexandræ*, *O. membranaceum*, *O. Rossi*, *Laela autumnalis*, *L. anceps*, *Cattleya Triandri*, *Cymbidium Mastersi*, *Cypripedium insigne* and its varieties, one of which, called *C. insigne punctatum violaceum*, is superior to the very fine *C. insigne Maudslayi* (tree): *Lycaste Skinneri*, *L. lampes*, *Sophranitis coccinea*, *Oncidium cheiroporum*, *O. ornithobryceum*, the *Phalenopsis*, &c. These are all very beautiful varieties, different specimens of some of which, as, for example, *Dendrobium nobile*, *D. Wardianum*, and *D. crassinode*, will be in flower for the next six months. The worst antagonist against which the cultivator of Orchids (particularly in and around London) has to contend is the fog. For a long time it puzzled Orchid growers to give a reason why the flower-buds of certain varieties of Orchids (particularly those of the *Phalenopsis*) should frequently in winter turn yellow and die; it seemed strange that the fully-expanded flowers did not appear to be injured: the very small buds also escaped. It was very disappointing to lose the flowers when they were most wanted. Ultimately, on comparing notes, it was found that whenever one collection was injured in this way, the others in the same neighbourhood were in a like condition, and it was remarked that the mischief always occurred immediately after a heavy fog,

and thus the evil was, I believe, traced to its proper origin. I have never heard of any prescribed remedy against the ill effects of fog on the flower-buds of Orchids, but the course which I pursue is simple and generally efficacious. At the approach of fog I have the houses shut up closely, the floors and underneath the stages sprinkled with water to produce humidity, and the flower-buds lightly syringed. The houses are kept closed and the atmosphere in them moist until the fog has disappeared, when if it have been of any duration, the flower-buds are again lightly syringed, placing the plants in the walk to syringe them, so that the drip may not fall on the other plants. If treated in this way the greater part of the mischief will be averted, although many buds may be lost by the night fogs.—JAMES O'BRIEN.

Wood Pavements.—A printed circular has been sent to us containing the following statements in reference to this subject:—Wood pavements have been laid down in New York for thirty years, and are now altogether condemned. New York surveyors have described them as "worse than worthless." Twenty-one miles of them in New York are now being removed. None of them have lasted five years. The New York surveyor states that the yearly repairs for stone in 1874 was £87 per mile; for wood, £392 per mile. Are ratepayers prepared to pay a rate for paving four times in excess of that now paid? We have had experience of it in London. Thirty years ago it was laid down in Oxford Street, and was generally condemned by the shopkeepers as a stinking nuisance, and it was soon discarded. It is the dirtiest of all pavements, the most expensive, and the most unhealthy. Five streets in the City laid with it six years ago have been all condemned and laid with asphalt. The last report from New York is dated June 30, 1876, and it says: "It is useless, however, to deplore the errors of the past, doubtless attributable in this case, as in many others, to the combined influence of jobbery and ignorance." If it is course of action on the part of the vestries be not resisted, in four years the paving rate will be at least 1s. in the £. Wood was laid in King William Street four years ago. It has since then been entirely re-laid, and is moreover in constant repair, no part of it lasting three years at the most, and some scarcely two years.

NOTES AND QUESTIONS—VARIOUS.

Frame Coverings.—Would not the paillassons or straw mats so universally employed in France answer "South Italy's" requirements? They will keep out 10° of frost, and if made so that the straw runs from the top downwards when put on they will shoot off much rain, or at any rate will not retain so much wet as if made in any other way. They should be made of good Bvo straw, which should be cut just before the grain is ripe, being then much tougher than if cut later, and consequently lasting longer. Their manufacture is universally known, and persons for the Continent, and may be learned a few lessons.—J. CORSMILL, *Bristol.*

—I use lashed Wheaten straw mats for covering frames. They are made in the following manner:—I take two pieces of tar twine of equal length and place them 20 in. apart; on the middle of these I place eight or ten straws, cross the twine, and pull tight; I then add more straw, and thus proceed until the mat is of the length required. They make strong, light coverings, and form efficient plant protectors.—W. N., *Peckham.*

Thuja Lobbi (see p. 573, Vol. X.).—I have just measured a specimen of this Conifer, a small plant of which was planted in February, 1862. Its height is now 35 ft. Another plant I subsequently is nearly 31 ft. in height. The latter is the most beautiful, being much broader at the base than the other, and would have been taller, but it was severely root-pruned for removal a year or two ago. Its appearance has been much improved by thinning some of the lateral branches, which makes it less dense and much more graceful.—JOHN GARLAND, *Killerton, Exeter.*

Scarcity of Holly Berries.—Scarcity is hardly the right term, for, as a rule, there are none at all; spring frosts and a summer drought are the reasons generally assigned for their absence; Mr. Darwin, however, in a contemporary, ascribes it to the want of bees. It may be so, but upon that hypothesis, it is difficult to account for occasional plants bearing a full complement of berries, as is the case here; one plant curled over, and perhaps 10,000 without a berry. How could the bees confine themselves to one only?—D. P. FISH.

Slugs and Rare Perennials.—I never remember slugs so numerous as this season, having killed some hundreds in a few days; fortunately the weather is mild, and they do not bury themselves in the soil, but may be found under leaves lodged at the edge of Grass. Put Cabbage leaves at intervals of from 1 ft. to 6 ft. apart on the beds, sprinkle a pinch of bran under each leaf, and reverse them every morning when destroying the slugs. Look especially after *Crocus Imperati*, some of the *Liliums*, *Aster alpinus*, and small *Hellebores*, as these latter are eaten up; the earth before one can see that the plant has started into growth.—BARKS.

Crocuses eaten by Mice and Rats.—I should feel obliged by any of your readers informing me how to prevent mice and rats from scratching up and eating *Crocus* bulbs in beds and borders.—W. T., *Mark: Harborough.*

Manure for Shrubs and Trees.—Can a cheap artificial manure, either in liquid form or otherwise, be recommended to promote the growth of ornamental shrubs and trees?—K. L. D.

Potatoes and Cocoa-nut Fibre.—Would it be a good plan in planting Potatoes in a heavy soil to cover the sets with 2 in. or 3 in. of Cocoa-nut fibre before putting the soil over them?—G. S. M.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

SCARCITY OF COMMON FRUITS.*

IN London and other large towns the supply of fruit is almost unlimited for those who have ample funds at their disposal. Strawberries may be eaten in February, and Grapes all the year round adorn the tables of our rich citizens. Unfortunately few comparatively are in this happy condition, and the majority of householders of limited means feel the scarcity and dearth of fruit, not only when at home, but even when they are away at any so-called out-of-town locality. Indeed, I might almost say that at a distance from towns it is almost impossible for a stranger to get fruit. The reason for this is of course easy to find. The supply of fruit is not at all adequate to the demand of even large towns; high prices can be obtained for it in the richer centres of population, and as the means of communication are now cheap and easy, everything is sent away from the country. In this way, what little is grown in villages can only be obtained in towns. In the suburbs of large cities again, and especially near London, market gardeners only supply the markets, and even the suburban shops are usually kept up by sending to the great markets in London for their main stock. In saying this I do not mean to suggest for a moment that this arrangement is commercially incorrect; I have no doubt it is necessary, and for the more costly and the best fruit this mode of disposal must always be maintained. Some of the largest consumers of fruit are the manufacturers of jams and preserves. Round London one or two well-known firms have regular travellers who look out for, and buy up for the best price, any crop of fruit which is really sound and good. This manufacture, though highly important, and, indeed, almost essential, in order to give palatable winter food, tends to reduce still further the supply of fresh fruit during summer. A good deal of fruit is imported from abroad, and, indeed, we owe many of our commoner fruits to the Continent. Great numbers of them were imported in the first instance as special luxuries, and then they gradually became cultivated here. The annual value of the imports of fruit is about £6,000,000; and extensive preparations for an increased production and export are being constantly made in various parts of Europe, so good is the business and so profitable the results. For the imports, as far as they are good and wholesome, we should be most grateful to our neighbours for sparing for our use of their superfluity; at the same time, much fruit of foreign growth cannot be so good as freshly picked fruit coming from close at hand. Some descriptions, such as Pears, Pine-apples, and Plums, may, no doubt, be excellent, but much that is imported is apt to get damaged on the road, and to become stale, and even worse, before it reaches the consumer. However large the importation of foreign fruit may be, it never can meet the demand which must always exist for fresh common fruit. The question then arises, how is this deficiency of good, wholesome fruit to be supplied? Can we hope to obtain very much more from abroad, or must we look to our own small island for what we want. Possibly, as means of communication become even more extended than they are at present—particularly if, by continuing to produce so little ourselves, the price is maintained—we may hope to obtain still more from abroad. Increased inter-communication, however, implies an increased population, and consequently a larger consumption, abroad as well as here, so that what is thus gained in one way may probably be lost in another. I think, therefore, that we must regard our own soil as the field for more increased production, and I feel convinced, as I hope I shall presently show, that this can be done, and that our own island can be made, without sacrificing any other produce, to furnish ample and abundant common fresh fruit simply by the exercise of a little foresight, industry, and thrift. The amount of land

required to supply an ample quantity of fruit per head is difficult to ascertain. Of course, soil varies, and much land that would be good for many purposes is out of the way, and could only be cultivated at an unremunerative cost. The fact, however, that at the present time only about 40,000 acres (that is, 60 square miles—a piece of land less than 8 miles by 8 miles) is all that is set apart for market gardens in this country shows, in spite of the large quantity that is imported, what an amount of fruit may be raised on a comparatively small piece of land. Now every one must have noticed how many small pieces of waste land are to be seen in all directions. In all villages and country roads with which I am acquainted, there are such waste spots. Is it not possible, then, to rescue these for the cultivation of common fruit? It requires only to be gone into in a few villages to show how much land is thus, so to speak, useless; and these odd corners are to be met with in all parts of the country. To begin with, there are the railway embankments, which must amount to many thousand acres. The railways of the country are 17,000 miles long, giving 34,000 miles of bank. Say these average only 10 yards wide, the land which this represents is about 200 square miles. Some of this land is admirably adapted for fruit culture, but allowing that only a third is suitable in soil or situation for cultivation it would be sufficient to double the area of our present gardens. No one need think that the embankments with care will be unproductive, for every here and there along most lines, where a frugal stationmaster or porter who is fond of gardening is to be found, the banks, and even the stations, are made not only beautiful with flowers, but highly productive in the way of vegetables and fruit. The small pieces of ground attached to cottages in the country form another great field for the cultivation of common fruit. No doubt not a few are now utilised for vegetables and flowers, and the cultivation of vegetables is as important as that of fruit, while the production of flowers is highly desirable from its civilizing and elevating tendency. At the same time no one can visit the cottagers in almost all parts without noticing, if attention be drawn to the fact, how many small pieces of a large proportion of their little gardens are allowed to remain unprofitably employed. This neglect is not only wasteful, but it tends to destroy the beauty and comfortable appearance of the home. Again, in most villages and along roads in all directions there is much land wasted. Why, then, should it not be allotted to the labourers, provided they are willing to turn it to account by cultivating it in their evenings and spare time? I have endeavoured so far to show, first, that a great deal more common fruit is required for the population of this island; and secondly, that, without trenching on the land devoted to other purposes, ample space exists on which the fruit so much required might be grown. The last and the most difficult question, however, remains, that is, how are we practically to promote the cultivation of these odd parcels of land, and make them produce an abundant supply of common fresh fruit for the people? That this is a subject for the Society of Arts, I think, is obvious. In its very early days, that is, over 100 years ago, the Society took in hand the problem of the planting of commons and waste lands with timber trees; and many parts of the country now have, indirectly, cause to be thankful to the then action of the Society both for the wealth of timber which that action was the means of producing, and for the improved beauty of the present landscape. The cultivation of fruit, I think, is as important now as that movement was then; and I hope that, like so many useful movements of this Society, the increased cultivation of common fruits may be promoted by this meeting. If some persons in authority could be induced to set the example of planting fruit trees instead of so many forest trees, a very great deal of useful and wholesome diet for the people of this country would be the result. At the present time we import annually nearly £2,000,000 worth of Apples and other hardy fruits, and there would seem to be no reason why a great deal, if not all this, should not be grown in this country. No doubt the climate is better in the south of France, but excellent Apples and hardy fruits are grown here; and if fruit can be sold at a profit after payment of the heavy carriage from abroad, more extensive cultivation here would surely pay well.

*Read on Wednesday evening last by Mr. G. C. T. BARTLEY to the Society of Arts, John Street, Adelphi.

CYCLAMENS WITH SMALL FLOWERS.

It is a very common thing to see *Cyclamens* with good growth and foliage, yet with small, shrivelled, undeveloped flowers. You will find them like this in some nurseries where such plants as *Pelargoniums*, *Primulas*, and *Cinerarias* are well grown, and where watering and ventilation are understood. In these places the defect is not caused by the use of unsuitable soil, nor by excessive or insufficient watering, or want of ventilation in their growing season; but, in my belief, it is caused entirely by mismanagement during the ripening and resting period, and when starting them into growth. I know it to be a prevalent idea that they should be rested in the shade, and when so treated they never get the sun, for they are shaded from the sun when in flower to preserve their beauty, and as soon as the flowers are over they are put in the shade to rest. This is wrong. The corms should be thoroughly ripened by full exposure to light and sunshine, and in a free current of air, with watering just sufficient to keep the bulbs plump. Their resting period should be extended as much as possible, and they should be started into growth very gradually and close to the glass; if they start into growth before the middle of September they require a little shading from fierce sunshine. Watering should be increased very gradually as the foliage develops itself. When the foliage has got well up, and is growing vigorously, then water should be given freely. At no time should the plants be pushed on in heat—a temperature of 50° by day and 45° by night is quite high enough. Light and air in abundance are essentials—a close, warm, stagnant atmosphere is destruction to the quality of the flowers, and so are all kinds of forcing. To those who wish flowers of first-class quality, my advice is to let the plants take their own time in growing. In February, March, and April, the flowers open naturally, and are then at their best; good plants may, however, be got as early as October, but only by skilful growers. In addition to what I have said the following points must be observed in good *Cyclamen* culture:—The soil used should be sweet and be kept sweet; there must be thorough drainage; there should be no grubs or worms in the soil; the plants ought to be kept free from red spider, aphid, and thrips, and clean in the foliage, and they should not be re-potted or crowded. But, and this I wish to impress upon your correspondent "J. E." (see p. 39), unless there is perfect maturation of the bulb, the most skilful after-cultivation will not develop good flowers, in fact, without that they are not in the bulb, and cannot therefore be coaxed out of it.—M.

RESULTS OF THE MILD WEATHER.—*Clematis Jackmani*, at West Croydon, has already made green shoots from 12 in. to 18 in. in length; these are, moreover, by no means weak and spindly as might be imagined, but healthy shoots, such as one would expect to find in April; *Hyacinths*, too, in the open border, have made considerable growth, some plants even showing their flower-buds; and a *Gloire de Dijon* Rose, growing on the front wall of a house, is still in fresh green leaf, and has apparently only just ceased blooming.—C. W. S.

LASIANDBRA MACRANTHA FLORIBUNDA IN WINTER.—This, when struck early in spring, and grown on during summer in a warm greenhouse, re-potting and pinching when required being attended to, makes a good winter-flowering plant, the blooms of which are very useful in a cut state. Three or four of them, placed amongst cut flowers of other kinds at this season, set them off to advantage. Six-in. or 8-in. pots will be found large enough for plants to bloom during the winter months, and the last shift should not be later than August. From plants thus treated we have been cutting blooms all through the winter, and if they are in a house the temperature of which is never above 50° at night, the blossoms last longer, and are of a deeper colour than if subjected to a greater heat.—A. H., *Thoresby*.

SALT AND SOOT AS MANURE.—The "Germantown Telegraph" has published the following relative to the value of salt and soot as manure:—Mr. Cartwright received from the Board of Agriculture the honorary reward of a gold medal for a valuable set of experiments made by him to ascertain the value of salt as manure. Of the soil he used nearly three-fourths was sand; the remainder consisted of calcareous and vegetable matter, with alumina and a small quantity of oxide of iron. Having tried all the usual manures alone and differently combined on Potatoes, he found of mixed manures that salt and soot were superior to all others. One peck of soot and ¼ peck of salt were used to a bed 3 ft. wide and 120 ft. long.

NOTES OF THE WEEK.

CELOGYNE CRISTATA.—A specimen of this useful winter-flowering Orchid in Messrs. Veitch's nursery at Chelsea is now in excellent condition, being furnished with numerous gracefully-drooping flower-spikes thickly beset with buds and expanded blossoms, the latter unusually large. This plant, loaded as it is with pure white and golden-yellow flowers, is very effective.—M.

AFACCIA CRISTATA GIGANTEA.—This is now flowering freely in Mr. Ley's nursery at Croydon. This variety is in every way stronger and larger than the old *A. cristata*; and although its blossoms are not handsome, they are interesting on account of their singularity. The plant in question is growing in an intermediate-house, and is subjected to similar treatment to that given to *Marantas* and similar plants with which it is associated.—S.

THE BEST MARKET PELARGONIUMS.—It may interest some to know that the kinds of *Pelargonium* formerly grown for London markets are now being superseded by varieties of more recent introduction, such as *Mabel*, *Digby Grand*, and *Empress of India*. These kinds are found to be dwaiyer in habit than the older varieties, and their flowers, being of greater substance, are consequently more valuable for market purposes.—C.

HABROTHAMNUS ELEGANS VARIEGATUS.—This variegated form of a well-known plant proves to be even more useful than the species itself, its creamy-yellow-stained foliage rendering it very effective when associated with Ferns or other green-leaved subjects. Plants of it in small pots in the Exotic Nursery, Croydon, are used for the front rows in greenhouses, positions for which they are admirably adapted.—S.

CYDONIA JAPONICA FOR CONSERVATORY DECORATION.—This plant, so effective when in flower in open borders during the spring and summer months, is rarely seen in bloom at this season. Medium-sized plants of it, however, lifted from the open ground in autumn, put into 9-in. pots and forced, are now flowering freely in the conservatory at the Pine-apple Nursery, where, associated with other forced flowers, such as those of *Deutzia gracilis*, *Prunus sinensis*, and others, the bright red blossoms of the *Cydonia* are shown off to advantage. Small trusses of its bloom when wired are also useful for bouquet making.—C. S.

RAPIDLY-GROWN IXORAS.—In Mr. Ley's nursery plants of *Ixora Williamsi* struck from cuttings two years ago, are now from 3 ft. to 4 ft. high, and nearly as much through. From these the flowers have been regularly removed as fast as they appeared and the most vigorous of the shoots occasionally stopped. Under this treatment handsome specimens for next year's flowering are the result.—J. T.

DAPHNE MAZELI.—*Daphne indica* is, as all of us know, a useful plant, but allow me to direct attention to another species which closely resembles it, and which is certainly hardy in England, viz., *Daphne Mazeli*. This is a native of Japan, and has all the appearance of *D. indica*, except the colour of the leaves, which are margined with white. I have a specimen of it here against a south wall which is now showing bloom very profusely. When put there four years ago, it was a very small plant, and it is now 2½ ft. through, and is furnished with some thirty or forty bunches of flowers. It has withstood, merely protected by means of a straw mat, 32° of frost. All who are fond of sweet-scented flowers will be very pleased with this *Daphne*, and on account of its being an evergreen it forms a conspicuous plant the whole year round.—MAX LEICHTLIN, *Baden Baden*.

BOURNEMOUTH WINTER GARDEN.—This building, which was opened to the public on Tuesday last, the 16th inst., is situated in the centre of Bournemouth, and within a few minutes' walk of the sea. Its total dimensions are as follow:—Length, 220 ft.; width, 126 ft.; height, 50 ft.; and floor area, 20,000 square ft. The roof, which is curved, light, and elegant in appearance, is constructed on Messrs. Fletcher, Lowndes, & Co.'s system with patent iron tubular ribs. The building, which is efficiently heated, is skilfully planted with Ferns, Palms, and similar plants, which, when well established, will give it a furnished appearance. The grounds surrounding the building are also tastefully laid out and planted.

THE EDELWEISS IN LONDON.—On the 1st of July last, a small plant of the *Edelweiss* in bloom arrived in Eaton Square. It came from near Batzen, packed in a tin box with a quantity of Moss, leath, and similar surroundings. I turned them all out into a pan, adding some mould, and placed it outside the window of a north room. I laid around it on the Moss some small pieces of ice every day, moving it into the room when the sun was hot. When it reached me, it had five flowers on it, three in full bloom, and two buds, which opened. In August, I found another bud which also opened, and in the following month appeared the last, making a total of seven blooms on a plant of the *Edelweiss* growing in England.—H. A. D.

A WINTER-FLOWERING IRIS (*I. STYLOSA*).

JUBÆA SPECTABILIS HARDY AT GLASNEVIN.

THIS beautiful Iris, which is a native of Algeria, is now tolerably abundant in all gardens in which the more choice kinds of hardy exotics are grown. During the last fortnight it has flowered with the Hon. and Rev. J. T. Boscawen in Cornwall, and also with Mr. H. J. Elwes, at Preston, near Cirencester, and we have likewise seen it in several London trade collections. The large handsome flowers from which the annexed illustration was prepared were sent to us by Messrs. Hooper & Co., of the Central Avenue, Covent Garden, who inform us that it is quite hardy and blooms freely in their nursery at Twickenham, where at the present time we are told a dozen or more of its delicate flowers might be cut. It is called *Iris unguicularis* by some authors, but it was figured in the "Botanical Magazine," t. 5773, as *I. stylosa*, a name by which it is generally known in gardens, and which it is likely to retain. Its flowers, which are said to be among the largest of the genus, have a slender tube nearly 6 in. in length. They are fragrant, and are said by Dr. Moore to be produced from Christmas onwards to the end of January. The body colour of the flower is dark lilac, the bases of the fall petals being white streaked and dotted (as shown in the engraving) with purple. The slender standards are uniformly lilac. Although the plant is quite hardy, its flowers are so large and delicate in texture that some slight protection from rain and rough winds is desirable, unless indeed the position which it occupies is well sheltered and the weather mild. It succeeds in almost any soil.

THIS Chilian Palm, with its graceful, pinnate leaves, was looked upon when first introduced some twenty-five years ago, as a stove plant; in fact, up to that time the only Palm recognized as even half-hardy was the *Chamærops humilis* from the south of Europe, which, however, both as regards vigour of growth and hardiness of constitution, has been completely eclipsed by the Chinese species, *C. Fortunei*, and the Nepaulese species, *C. excelsa*. *Jubæa spectabilis* unprotected has, however, withstood the winter's cold in Glasnevin Gardens for five years, and it is not only acceptable as a type of the Feather-leaved Palm—equally hardy as the Fan-leaved—but judging by its appearance when I saw it last December, it promises to be decidedly the more elegant plant of the two. Surely both species would find favourable conditions for development, even so far north as the Island of Arran, and in all places contiguous to the sea where extreme frosts are unknown. I would esteem it a favour if any of your numerous correspondents would communicate their experience as to the hardiness of the *Jubæa*, explaining at the same time the conditions under which its hardiness has been tested. The conditions that I consider ought to be observed in order to fairly test the hardiness or otherwise of any plant, are, in the first place, that the plant should be young; secondly, if it have been grown in a close house far from the glass, let it be removed to the greenhouse, selecting a position where it will receive the full benefit of the light and a free circulation of air; thirdly, if the growth which it has previously made be



Iris stylosa.

B.

drawn up and attenuated, give it a twelvemonth under the treatment just described, so that it may make a stiffer and more robust growth; fourthly, prior to planting out the following summer, remove it from the greenhouse to a cold frame, where it will have the benefit of full sunshine and exposure during the day, and the protection of the glass during the night, and do not attempt to plant it out until after the longest day, or even the early part of July; fifthly, the selection of a suitable site, such as will furnish quality of soil, depth of drainage, and moderate shelter, bearing in mind that the lowest, and what might at first sight appear the most sheltered places, are frequently the very places in which early autumnal frosts make their effects most apparent; and further, that many of these doubtfully hardy plants starting into growth late in the spring are equally late in completing it, and that the perfect maturing of the season's growth is, as most of us know, the all-important point to be aimed at. As my remarks have a special bearing upon Palms, and as in many cases such plants may have been cultivated in pots for years, till their tough roots have become entwined into a compact mass, it will be advisable at the expenditure of some little time and patience, and at the risk even of some breakage to disentangle the mass of roots and spread them out—the future vigorous growth of the plant will much depend on the care and judgment exercised in this operation. At the outset my intention was merely to record the fact that the *Jubæa* has proved as hardy as our Chinese Fan Palm; but I have been led into these somewhat discursive remarks by having observed that the verdict of "not hardy" is sometimes applied to certain plants without the chance of a fair test being given them.

JAMES C. NIVEN.

Botanic Gardens, Holl.

Crocus Imperati in Winter.—This beautiful *Crocus* is now in flower with me; on a small potful of it there are five expanded blossoms, each of which has six petals; the three exterior ones are pale saffron at the back pencilled with dark lines, and soft pinkish-lilac on the upper surface; the three interior petals are the same colour back and front, and only slightly pencilled; the centre is yellow, with yellow anthers and stamens, and when the blossoms are fully expanded they are singularly beautiful. The bulbs were potted early in summer, and plunged in an ash-bed till they began to show signs of throwing up buds, when the pot was taken into the greenhouse to flower.—E. W.

Effect of the Excessive Rainfall on Vegetation.—At last (Jan. 15) we have had a fine day, after a pouring rain nearly all night, as if it had never rained before. Considering the mildness of the weather, it is surprising how little vegetation is out of season. The enormous evaporation consequent on the unusual rainfall has kept plants and buds almost as much back as frosts. This is fortunate as regards our fruit and flower prospects for next year. It is even probable that if frost come at any time during this month it will do but little harm to plants or trees, most of which, notwithstanding all that has been written to the contrary, are in their usual state of semi-rest, though the birds sing at morn and eventide as if it were spring, and the rooks are reconnoitring their old nests. The wind is due west to-day, with signs of frost in the air, and we may, perhaps, hope that the forty days and forty nights that have deluged horticulture out of the garden are almost ended.—D. T. F.

Echium fastuosum hardy in Ireland.—This plant is well described in *THE GARDEN* (Dec. 9) as being the "handsomest of the shrubby *Echiums*." It has been known in cultivation for nearly a century. Our contemporary very truly remarks with regard to it, that "though no more beautiful object can be imagined, few have probably any knowledge of it." After stating that the writer's first personal acquaintance with it was at Mentone, and alluding to its imposing aspect, "distinct from anything in our gardens," he says that in the south of France it thrives in the open air throughout the year, and the hope is hazarded that it will, perhaps, do the same "in the south of England on dry soils;" and then concludes, as a matter of course, that it would grow and do well in "well-lighted, cool houses." Well, here is an old friend, which even in our backward Ireland has been known and grown for more than half a century at least, and found to be perfectly hardy, not only in Cork, Kerry, and other southern counties, but in Westmeath and others far less favoured as regards mildness of climate.—"Irish Farmer's Gazette." [On sending the above to Dr. Moore, he writes to us as follows:—The enclosed statement is at variance with my experience. I have tried large plants of it at Glasnevin, but they have been as often

killed. I am not prepared to state my opinion against its standing out in the south of Ireland, but I have great doubts about its surviving an ordinary winter in Westmeath. I do not recollect seeing this plant except in conservatories in Ireland.]

Hybrid Columbines.—In the summer of 1874 Mr. Isaac Anderson Henry crossed the blue *Aquilegia cœrulea* with the yellow *A. chrysantha*, and the seedlings which bloomed in June, 1876, partook of the character of both parents, the outer reflexed segments being of a delicate lavender-blue, and the inner ones pale yellow. In colour the male parent, *A. chrysantha*, seems to have exerted the most influence. This hybrid is a very handsome one, bearing large, long-spurred flowers, and all the seedlings from this union appear to be the same in colour and general appearance. It may be as well here to direct attention to the fact that *Aquilegias* generally are very susceptible of the influence of foreign pollen, and that but little reliance can in consequence be placed on any particular species coming true from seed.—B.

Striped Phlox Drummondii.—All the striped varieties of this *Phlox* which I have grown from seed during the last few years have been unsatisfactory; their flowers are not clearly and pleasingly striped, but have a confused appearance; we want something better, and must wait patiently until it is forthcoming. Years ago, from 1853 to 1860, there used to be in cultivation an exquisite striped variety of this *Phlox* named General Radetzky, the flowers of which were white, beautifully flaked with rosy-purple. At that time it was propagated by cuttings, and used to appear in plant lists. I think it was originally distributed by Messrs. Henderson of the Pine Apple Nurseries, but an application made to them some time since disclosed the fact that they no longer possessed it, and that there was reason to fear it had become lost. This I was sorry to learn, and should be glad to know if it be still grown by any of the readers of *THE GARDEN*.—E. W.

Outside Decoration of Low Greenhouse Walls.—We often see low greenhouse walls left entirely bare, because for certain reasons it is difficult to get a border wide enough for plant growth. In most cases, however, it is possible to have one 5 in. in width, and if this be made deep enough—say 2 ft.—it will be found to be an excellent place for at least two plants, which, during a great part of the season will decorate the wall in a very striking way. The plants to which I allude are *Tropæolum polyphyllum* and *Brodiaea coccinea*. The *Tropæolum* should be planted 5 in. deep and 4 in. apart, and the bulbs of the *Brodiaea* should be just about 5 in. asunder. When once established they will reach a height of 2½ ft., and during May and June the glaucous grey, odd-looking foliage of the *Tropæolum* forms a pleasing background for hundreds of deep golden flowers; all this, too, is enhanced and brightened by the many umbels of carmine and green-coloured flowers of the *Brodiaea*, which blooms exactly at the time when the *Tropæolums* are at their best. Both are perfectly hardy, and when once planted may, with the exception of a little tying, be left entirely to themselves.—MAX LEICHLIN, *Baden Baden*.

Large *Camellia reticulata* out-of-doors in Ireland.—At Creg, near Fermoy, Co. Cork, the seat of Mr. John Hyde, is a fine specimen of this variety of *Camellia*. It is growing in the open air, and even during winter, no matter how severe the weather may be, no protection is given it except that afforded by the surrounding shrubs and trees, in which respect it is favourably placed, being almost surrounded by Conifers, ordinary trees, and large *Rhododendrons*. It is in the most perfect health, as its dark green, leathery leaves amply testify, and I was informed that it never fails to produce an abundance of flowers every season; indeed, on the occasion of my visit on January 1, the blossom-buds on it might be counted by the thousand, and when in full bloom it must be a sight worth going many miles to see. It measures nearly 20 yards in circumference, but its height is not in proportion to its spread of branches; on the contrary, it is not more than from 7 ft. to 8 ft. high. For many years past it has been allowed to take care of itself, and it certainly appears to be none the worse from want of attention. There are several other large specimens of *Camellias* of different kinds close to it, but although they all appear to be in excellent health, I was informed that none of them flower satisfactorily.—E. R. Q. P.

Permanence of Garden Varieties.—The old test of a species or type was its inherent fixity, its "coming true" from seed under widely varying conditions of growth, but now we know that many of the wild types introduced to our gardens of recent years do not perpetuate their characters more exactly than some hybrids do when raised from seed, while, on the other hand, many sports and variegated varieties re-produce themselves from seed under cultivation as precisely as the purest wild types. This is particularly observable in *Asters*, *Hollyhocks*, *Stocks*, *Zonal Pelargonium Madame*

Vaucher, P. Christine, *Cobæa scandens variegata*, *Mesembryanthemum variegatum*, some Brassicaceous plants, and others. Indeed, when we come to fully realize the permanence of some varieties, and the precision with which they are re-produced from seed, together with the communication of colour or variegation by grafting variegated scions on green-leaved Stocks, we may well ask ourselves whether permanence or fixity in any variety or race is not due to weak characteristics in some cases, as well as to strong ones in others, just as diseases and peculiarities of colour are hereditary in the human race.—B.

SELECT FUNKIAS.

Among good, old-fashioned plants, I am surprised that Funkias are not more grown than they are. They are perfectly hardy, easily cultivated, and very handsome both in foliage and flower. There are only a few species, and of these I think the best are *F. lancifolia*, the smallest, and *F. grandiflora*, the largest of the family. *F. lancifolia* flowers in autumn; it has pale purple blossoms, which last a long time, and it is a good plant for the front row of a border. *F. grandiflora*, when well grown, is a noble plant, with large, pale green leaves, and fine, pure white, Liliaceous flowers, which are very sweet-scented; it is not, however, a very free bloomer. Snails are very fond of the whole family. Funkias should be grown in good soil, and a damp place suits them best. Though quite hardy, they are cut to the ground by the first frost, and entirely disappear during



Funkia grandiflora.

the winter. There are some very pretty varieties with variegated leaves of different forms of variegation, all of which are well worth growing; and there is one species which has the flowers pale purple with a distinct margin of white. This I have never seen, and I do not know if it is in cultivation; I only know it from a figure and description of it in that very useful book the "English Flower Garden," by Mr. W. Thompson, of Ipswich. Its name is *F. albo-marginata*.

Bilton Vicarage.

HENRY N. ELLACOMBE.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Coronilla glauca by the Sea-coast.—In tolerably sheltered spots this stands ordinary winters without protection; it commences to flower before the Christmas Rose, and continues in beauty long after it has faded. As a wall plant, it is very effective, and being not at all particular as to soil, it deserves more general cultivation out-of-doors than it usually receives. Like many other half-hardy plants it is subject to scale and various insect-pests under pot culture, but when planted out it seldom becomes affected.—J. GROOM, *Henham*.

Alonsoa patagonica.—This pretty species received from Patagonia has proved a valuable early and free-flowering annual. It grows about 15 in. in height, and forms densely-branched, compact bushes with at first downy-haired, but in an adult state glabrous, glossy leaves of a cordate-lanceolate shape. The flowers which are vermilion-scarlet in colour, are of fine form and disposed in densely-set spikes.—HAAGE & SCHMIDT, *Erfurt*.

An Effective Flower Bed.—A novel and beautiful effect was produced this season at Mr. Hunnewell's place, near Boston, by planting a bed with the variegated Japanese Honeysuckle, intermingled with an outer planting of Clematis Jackmanni—the purple of the Clematis flowers showing finely on the golden-yellow of the Honeysuckle.—W. F.

Saxifraga oppositifolia on Rockwork.—This is truly a gem on rockwork, and were I limited to ever so few plants I would give this a place. It flowers almost as early as the Winter Aconite; it is evergreen, hardy, compact, lovely when in flower, a condition in which it continues for many weeks; it is indifferent as respects soil if it be furnished with some chips of m. caecous sandstone, and it is equally indifferent as regards aspect if it have but a fair amount of sunshine. It bears frequently dividing, indeed, it succeeds all the better for such treatment.—E.R. Q. P.

THE FRUIT GARDEN.

GRAPES AT HECKFIELD DURING 1876.

So much has been said and written on Grapes and Grape growing, that it is almost a matter of impossibility to write anything new on the subject, and therefore I shall only record my own experience regarding the kinds of Grapes grown here during the past year; and if my notes do not coincide with those of better and more experienced Grape growers, my only reply must be that my system of culture must be at fault, and that I shall be pleased to receive instructions on those points in which I am found deficient. As being the most convenient form, I have arranged each variety of Grape in alphabetical order, and have appended it according to its position of merit at the end of this article.

ALCANTE.—This is one of the most popular late Grapes, but in my opinion very much overrated. It has a good appearance, never fails to colour perfectly, is of the most prolific type, and rarely causes anxiety in respect of shanking, but it has a very thick skin, and though the flesh is very sweet it adheres to the skin, which is another great drawback. It will keep in good condition till March.

ASCOT CITRONELLE.—This is a seedling raised by the late Mr. Standish, who advised me to plant it, as he considered it one of the finest-flavoured Grapes that could be grown, which it certainly is. It belongs to the Frontignan section, and has bunches about the size of the old White Frontignan, berries perfectly round and of pure amber colour, and it keeps in good condition till the end of January. It is one of the best late White Grapes, and deserves to become popular, which, no doubt, it eventually will.

BARBAROSSA (GROS GUILLAUME).—This, when given an abundance of heat, is one of the best late varieties, but if grown in a cool house it is comparatively worthless because flavourless. It is generally considered a shy bearer, but I have found the contrary to be the case. The flesh is most refreshing, and, for a late Grape, thin-skinned. From close observation of the two (so called) kinds growing together, I consider this and Seacliff Black synonyms. My plants were obtained from a good source for distinct varieties.

BLACK HAMBURGH is too well known to need description, though it may be well to add that novices starting Grape growing will be wise to grow this kind only.

BOWOOD MUSCAT.—Very little, if any, different from Muscat of Alexandria; for though sometimes I have fancied I could detect a marked distinction, when the two have been placed in juxtaposition the difference was not perceptible.

BUCKLAND SWEETWATER.—One of the finest looking early White Grapes that can be grown, but the flavour when the fruit is at its best is but second-rate, and becomes quite insipid if left hanging long after being fully ripe. The Vine is a strong grower, but a somewhat uncertain fruiter.

BURCHARDT'S PRINCE (ARAMON) is generally considered a good late Grape; and, so far as its keeping properties are concerned, this is quite correct, as it will hang in good form till March. I have, however, decided to discard it on account of the earthy flavour it leaves on the palate, and, with me, its inability to colour properly. It has proved to be a good variety for outdoor growth, as I had some good samples of fruit from a west wall in the past season, from which circumstance it should be tried in places where other varieties do well in the open air.

DUKE OF BUCCLEUCH is one of the largest, perhaps the largest, Grape yet known and remarkably early. Last season it was quite ripe a month before Hamburgs growing in the same house, but began to decay at the foot-stalks of the berries in a very few days after being fully ripe, so that I have reluctantly decided to discontinue growing it. It is of a robust constitution, and shows fruit freely; and for a market grower who could be certain of customers for the fruit the moment it was ripe, it would prove quite invaluable and certainly profitable.

DUCH SWEETWATER.—A well-known, very early kind; indeed, I am inclined to give this a first place as an early White Grape, for although the bunches are comparatively small and the berries occasionally irregular in size, it is a certain fruiter, and of the most exquisite flavour; it is one of the best kinds for pot culture, as also for the cool greenhouse and open air.

FOSTER'S WHITE SEEDLING is another good early variety, being larger both in bunch and berry than the preceding, and, if it had but the same delicious flavour, would, as an early Grape, be as near perfection as possible; this is also well adapted for a cool Vinery,

and those in search of a white companion for Black Hamburgh could not make a better choice.

FRANKENTHAL is considered by some identical with Black Hamburgh, but as growing here the distinction is very decided, especially in the fruit, which is perfectly round and always carries a deeper bloom, while the fruit of the true Hamburgh is more inclined to an oval shape, and is rarely "hammered," as is the case with the fruit of Frankenthal.

GROS COLMAN.—The largest Black Grape I have yet seen, and by no means so coarse in flavour as generally believed. I grow it largely here, and connoisseurs in Grapes praise its flavour greatly. The reason of its being so summarily condemned by many is doubtless that it has never received justice at their hands, being grown only in a cool house, for which it is not suited, as it requires a long season and plenty of heat to bring out its saccharine qualities. It is a remarkably free-growing and fruiting Vine, producing bunches of very large, and berries exceeding 1 in. in diameter. It is difficult to colour well, and the only way to succeed in this is to allow it a long season, to let the laterals run, and to keep heat in the pipes with plenty of ventilation night and day. It will remain plump and fresh till February, and must therefore be classed as one of the best late Grapes, especially for the market-grower.

LADY DOWNES SEEDLING.—Taking all points into consideration, this is a long way at the head of the list of late Grapes. I know no other kind that can compete with it for late keeping combined with quality, and I am quite at a loss to understand the preference sometimes awarded to Alicante, which, in my estimation, is far inferior to it; I admit that Alicante is much easier to grow, still, the extra care involved in the culture of Lady Downes is much more than compensated by the superiority of the fruit. Alicante shrivels by March, and even sooner; Lady Downes never fails to be plump and fresh to the middle of May, while its flavour is vastly superior to that of Alicante. Like all other late Grapes, it should be afforded plenty of heat at nearly all stages of growth, and if this be given, together with hourly attention when the berries first begin to change from the sour to the saccharine state, to prevent scalding through insufficient ventilation, no other late Grape can compete with it in either quality or productiveness.

MADRESFIELD COURT.—This is one of the best-flavoured Grapes grown, and now that its peculiarities of culture have become known, it is daily rising in favour. My opinion is that it should be grown in a house by itself, where it could receive special treatment as to moisture, &c., should signs of its one great fault, viz. cracking, put in an appearance. It was first sent out as a late Grape, but I have never been able to keep it longer than November, and even by that time it shrivels very much; I therefore class it as a midseason Grape of the first order.

MRS. PINCE'S BLACK MUSCAT.—Like many others I have failed to colour this variety satisfactorily, though during the past season it did better in this respect than usual, and I hope this year to further improve it. I have a notion that if all its lateral growths were allowed to run at random for a fortnight or more previous to the colouring period, and till the process was completed, that we should have little cause to complain of lack of colour. It is of a rich Muscat flavour, and keeps in good condition to the end of the year, so that it can hardly be classed as a late Grape, such only being considered late varieties that keep till March or April.

MUSCAT OF ALEXANDRIA.—This, like the Black Hamburgh, is too well known to require any comment; therefore I will only remark that it is by far the best late Grape in existence, as it will keep with care if well ripened in good condition until the end of March or April.

RAISIN DE CALABRE.—This is a very good late Grape of the non-Muscat class, having bunches of large size and perfectly round, medium-sized berries. If ripened in heat the flavour is good, but if in a cool house, it becomes insipid, and the skin tough and hard. It is one of the most fruitful kinds, scarcely ever failing to show three or more bunches on each shoot.

TREBBIANO is another of the same class as the foregoing; indeed, it is puzzling to distinguish between them, and to me the only discernible difference is in the berry. Trebbiano being inclined to be of an oval form, while the Raisin de Calabre is round. The flavour and growth are the same, and both delight in heat.

VENN'S BLACK MUSCAT.—Two Vines of this kind have fruited here during the past season, but as I do not consider that they received full justice as to culture, I reserve my opinion of its merits till another year; I may say, however, that it is either a seedling reproduction of Muscat Hamburgh, or a very near relative.

WALTHAM CROSS.—This has failed to grow or fruit to my satisfaction, and I have therefore resolved to inarch Golden Queen on its stock. Its most serious fault with me has been its tendency to small,

stoneless berries. I should be glad to know how it is succeeding with other cultivators, as I have not seen it anywhere in anything like first-rate condition.

WHITE NICE.—One of the largest fruited kinds, when ripened in heat, of rich piquant flavour, but the Vine is of too vigorous a growth to be recommended for extensive cultivation.

WHITE TOKAY is the finest kind of the non-Muscat class of white Grapes, and deserves to be more generally cultivated. The bunches are large and compact, with berries of good size, and in colour a beautiful amber; the flesh is crackling, very sweet and refreshing, and keeps in good condition till the end of January.

All the above have fruited here during the past season, and some are still hanging, and the notes have been made after due deliberation on the merits of each kind. I place the different varieties as to merit in the following order:—

Black Hamburgh, Muscat of Alexandria, Frankenthal, Bowood Muscat, Lady Downes, Ascot Citronelle, Gros Colman, Foster's Seedling, White Tokay, Dutch Sweetwater, Mrs. Pince, Barbarossa, Alicante, Madresfield Court, Buckland Sweetwater, Trebbiano, Raisin de Calabre, Duke of Buccleuch, Venn's Black Muscat, White Nice, Burckhardt's Prince, and Waltham Cross. W. WILDSMITH.

Heckfield, Jan. 13, 1877.

BOTTOM-HEAT FOR VINE ROOTS.

It may seem almost an anomaly to advocate bottom-heat for Vines. All plants should have their roots as warm or warmer than their tops; such, in brief, is the teaching of Nature and the conclusions of common sense. Every part of a plant should advance simultaneously, if the plant is to be healthy and vigorous, and its produce plentiful and profitable. A large amount of profitless discussion has been expended on the question of the precedence of root or top growth. Practically, it would be wiser to assume that they are correlative and parallel: if subjected to similar conditions, all growth is, in fact, continuous. To write or speak of living plants beginning to grow is anomalous and contradictory, for they never cease to grow. The rate of growth may vary almost to infinity, but growth is nevertheless continuous from birth to death; and this is true alike of top as of roots, though not, perhaps, to the same extent. Each plant is in itself a unit, and its development cannot be divided into top or root growth, as one would divide the contents of a barrel of sugar. The roots of a plant are always in motion, so is the top if subjected to the same conditions. Of course it is possible to arrest growth by cold and dryness, but, apart from these forcible stoppages, growth continues until the complete decay of the plant: the old leaves fall at the summons of advancing life, and not in obedience to the languid bidding of approaching death, and when they fall the buds do but hasten on to a fuller life. They continue to fill and swell larger until their vital power bursts their scaly coverings, and new leaves, flowers, and shoots appear. Now the roots take as active a part as the tops in all these changes and in all this hidden growth, and perhaps a more active one, for, during the greater portion of this period of semi-dormancy it may be safely affirmed that the roots have been in a higher temperature than the tops; in fact, they have been receiving a supply of bottom-heat—for all excess of terrestrial heat over atmospheric or celestial heat may fairly be denominated bottom-heat. Again, the tendency of all substances is towards an equilibrium of temperature. The action of all gases, liquids, and solids, when brought into direct contact with each other, tends to prove this; and the earth is found everywhere to approximate to the temperature of the air, hence the temperature of the roots of the Vine and other plants should run parallel with that of the tops. How far in advance the roots may safely be of the tops for the most successful development of the plants is a vexed question into which I do not propose to enter; for the present I simply contend for an equality of temperature between the tops and roots of certain plants as the most likely means of securing the highest and most satisfactory results. How this equilibrium of temperature is to be maintained is also quite another question. Some advocate the heating of Vine borders from beneath by means of flues, hot-water pipes, or other means, while others declare in favour of warming from above by fermenting material or artificial or

natural heat. Both methods have answered well where skilfully applied.

But a prior question arises—why place the roots of Vines and some other plants in the cold, and the heads in the warmth of glass houses. No one thinks of doing so in the case of stove plants. The cultivator who would plant Stephanotis, Allamandas, Clerodendrons, Passion-flowers, or other tropical plants outside, with their heads in the stove-house, would be considered to have invited failure in the future development of the plants; but I cannot see much difference between such practices and subjecting the heads of Grape Vines to a tropical heat from November till May, while their roots are at the same time in an outside border exposed to most of the semi-arctic conditions of our variable climate. No! the simplest way of providing bottom-heat for Vines is to plant them inside the same houses as provided for the tops; the law of the equilibrium of heat will then take care of all the rest. Our present practice of placing the roots outside and the heads inside has nothing but precedent to stand upon. It is opposed alike to Nature and common sense; no doubt it has often proved successful, but that only proves the power of endurance of the Vine, and how cultural skill has vanquished the most unnatural and absurd difficulties, piled up in its way by red tape and routine: for, indeed, no better reasons can be given for the placing of the roots of early Vines outside while their heads are subjected to tropical conditions inside. The practice of planting early Vines outside cannot be defended on any reasonable grounds. It is directly opposed to Nature, and results inevitably in a reckless loss of cultural and climatal force. The same amount of artificial heat now used to elevate the temperature of early Vineries to the requisite standard would also furnish the roots of the Vines with all the heat they require if these were placed inside the house. But instead of adopting this common and easy method of affording the requisite amount of bottom-heat to Vine roots, they are placed outside the house in the cold, and warmed at great expense of material and labour. By planting the roots inside the house we utilize heat, improve the health of the plants, insure better produce, and avoid numerous failures which have their origin in our present most unnatural modes of treating the Vine and some other plants; we also obtain all the bottom-heat the Vine needs for making a healthy growth and furnishing a good crop of fruit.

D. T. FISH.

Fruit Protectors.—The cheapest and best of these I ever employed was a tame hawk. The summer before last it was tethered by the leg in the Strawberry quarter, with a large stone for a perch, and neither myself nor others ever saw a bird near the fruit. The blackbirds and thrushes got so accustomed to the sight of him that they perched on the wall a bit off, flapping their wings, and uttering that peculiar "te-whip" which they often give in the presence of danger; but they ventured no nearer. The hawk was tame, but never familiar with anyone, except a black cat, which had been brought up in the same basket with it. It was fed with birds caught in the net on the Gooseberry quarter, and it made uncommonly short work of them, but did not deign to pick the bones, which the cat, in a general way, polished off. The hawk, which was singularly timid when it got dark, was last winter killed by a rat, during the night, in one of the greenhouses where it took shelter.—J. S. W.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Free-bearing Pears.—In Mr. Wildsmith's excellent list of these, I was rather surprised to find Bergamotte Espéren placed second. Does it not come gritty at this time, or is this the effect of its stock or position? I have seldom met with it at all equal to Winter Nelis. I quite agree with Mr. Wildsmith in his high estimate of the latter Pear; it is simply exquisite. Mr. Wildsmith's other notes are also most interesting and useful, though situation and soil may cause me to think less of Thompson's and Knight's Monarch than he does.—D. T. FISH.

Winter Strawberries.—Are these, about which some discussion has lately taken place, considered early or late fruit? Some varieties are especially well adapted for producing a second crop, while others seldom show a single fruit. In December last there were many green fruits on our last season's forced plants, but I am doubtful if they would ever have become useful for dessert, as Strawberries, if grown and ripened in the absence of sunlight, are but indifferent at best as regards flavour. I find the first week in March to be as early as we can commence our regular Strawberry season—that is, with fruit possessing a really good Strawberry flavour.—J. GROOM, *Henham*.

TREES AND SHRUBS.

PAULOWNIA IMPERIALIS.

THIS is a beautiful large-leaved tree, and one well adapted for lawn decoration in places where it will fully develop itself. In appearance it resembles the Catalpa, and, like it, flowers profusely during the spring and early summer months. The flowers, which are borne in terminal panicles, are sweet-scented, and resemble those of a pale blue Gloxinia. In France it grows to a large size; the largest which I have seen there would be some 50 ft. high, with a trunk 6 ft. in circumference. Unfortunately the flowers are apt to get nipped by late spring frosts, and the season must be very favourable for them to get properly developed. In Paris, the Boulevard des Italiens was lined with this tree, and was so, if my memory serve me rightly, since the war, in 1874. It seeds freely, and plants of it raised in that way may be used in beds as fine-foliaged



Paulownia imperialis.

plants, in the same way as the Ailantus is now used. The seed, however, is useless after it is a year old. No doubt there are many places in this country where it could be made to grow into a large tree, provided a little protection in its first and gross stages of growth were given to the trunk by twisting a piece of shading or netting around it from early winter till May, and placing some short litter over the roots.

Floors Castle, Kelso.

H. KNIGHT.

HOLLY IN FLOWER AT CHRISTMAS.

At the last meeting of the Botanical Society of Edinburgh, Mr. M'Nab called attention to the great scarcity of Holly berries on the trees and bushes round Edinburgh. "Since I last addressed you," he said, "I have received numerous letters on the subject from correspondents in various parts of the kingdom, from which I learn that the scarcity has been general, and that different causes are assigned for it. The only places where an abundant supply of berries has been noticed were in some of the Highland districts, such as the Trosachs and Loch Katrine, and also at Loch Ard in Aberfoyle. One correspondent at Ranelagh, near Dublin, states that on sending to the garden before Christmas for sprigs of Holly with berries on them, few could be got, but instead of berries several of the trees were found to be covered with clusters of white and cream-coloured flowers. The cause assigned for this early blooming was that the blossoms must have been destroyed by snow and frost on April 14 last year. During the past summer many of the plants had nothing to do in the way of maturing fruit, so flower-buds have been formed which opened prematurely. What effect this early blooming will ultimately have on the Holly, another year will tell. On looking over the Holly bushes now in the garden, I find abundance of young flower-buds, but so backward that no flowers will be expanded for months to come. Therefore there is a fair appearance of fruit for next Christmas, if no

untimely frost should occur. Some allege that the late wet autumn had much to do in causing the berries to fall off while in a green state. The wet may have been the cause in some places, but here they were not in such quantities as to fall. The few which did ripen are those which must have been in the bud condition, and perhaps partially sheltered at the time when the general bloom was destroyed."

Cause of the Scarcity of Holly Berries.—Whilst the dearth of these is being discussed in THE GARDEN, it may not be out of place to direct attention to the fact that already there is promise of an abundance of bloom on the Holly next spring. As regards the hypothesis put forth by Mr. Darwin (see p. 40), it will be well if some of your readers will take note of the prevalence of bees or otherwise on the Holly in their respective localities during the blooming season, and also the results as regards berries. In the meantime I agree with Mr. Fish that bees can have little or nothing to do with the matter. Last spring we had a profusion of blossoms on all kinds of hardy fruits, but how lamentably short was the crop! To look for a large yield of fruit under the circumstances was natural, but it should have been recollected that two heavy crops of hardy fruits never follow in immediate succession. The failure, nevertheless, was mainly ascribed to frost, but it is obvious that, even had that influenced the blossom, the failure would not have been so entire. Just so with the Holly. Some trees that bore light crops the previous year have produced abundance of fruit this season, and yet all were equally exposed to frost. Is it not probable that a previous heavy crop of fruit so exhausts the reproductive powers of the tree for the next season that the floral organs are deficient in fertility? This is a possible fact that might have escaped the attention of even such an acute observer as Mr. Darwin.—D. A.

Tarred Trees v. Rabbits.—Tar extracted from the woods used in the making of gunpowder in the mills at Honnslow is commonly employed in this locality for the purpose of keeping rabbits and hares off fruit trees. This tar, which is of course a vegetable product, somewhat resembling Stockholm tar, is warmed over a fire and then ladled out into cans or pots—a little oil of any cheap kind is added to keep it from becoming too sticky—and then it is applied to the stems of the trees with a brush. An active man can run over many hundred trees in a day. A very small portion suffices to keep off rabbits, as the smell is of itself almost enough. This tar has been applied to young trees here for several years in succession, and there is no evidence that any injury results from its use.—A. D., *Bellfont.*

NOTES AND QUESTIONS ON TREES AND SHRUBS.

Standard Cotoneasters.—Your correspondent "A." (p. 15) states that Cotoneasters form good standards on the Common Thorn. We have a pair that were budded on the Hawthorn five years ago, and they have now beautiful heads of drooping branches, which, when laden with berries, form very interesting objects; they are on 3-ft. stems, and make excellent plants for borders.—J. Groom, *Hendon.*

Two-year-old Holly Berries.—I see recorded in a provincial paper a case in which two Hollies carried their fruit for two years. The berries, which were red and ripe last winter, are said to be still upon the trees red and green, and to have been so all the past summer. This is a singular circumstance—has it been noticed before?—J. S. W.

The Best Lilacs.—M. C. Ballet recommends the following as the kinds most worthy of culture among the varieties raised in recent years. He has observed more than fifty kinds growing in his garden, and among them he considers there are twenty good ones. The undermentioned, however, are best of all; viz., *Aime Mœquet's*, *Blanc Virginal*, *Carné a Grande Fleur*, *De Laval*, *De Crocels*, *De Trianon*, *Gloire de Moulins*, *Madame Kreuter*, *Philemon*, *Ville de Troyes*, and *Sauge*.

Tilia europæa dasystyla.—Every one knows the grand form and symmetrical growth of the European Linden, planted as a shade tree all over the land. Imagine equally perfect forms in the variety *dasystyla*, combined with young wood of the richest tints of yellow and red, and a wonderful, shining, dark gloss of leaf contrasting strongly against the yellow twigs. To these are to be added the quality of persistent retention of foliage. Long after the early browned and rusty leaves of other Lindens have entirely disappeared, this variety (according to Mr. S. Parsons in the "Country Gentleman") remains its fullest perfection. For all practical purposes, such as transplanting, resisting stress of weather, &c., it justly claims equal rank with its parent, and is quite as easily propagated.

Pinus insignis in Co. Dublin.—Having recently seen a descriptive note in your journal of *Pinus insignis* at Mount Shannon, I was induced to measure a specimen here which I planted out of an 8-in. pot in the autumn of 1854, in one of the Punctums. I find the following are the dimensions of it:—Height, 87 ft.; circumference of the stem at 4 ft. from the ground, 7 ft. This specimen is well furnished with branches to the ground; its growth this season measured 2 ft. 3 in., and it is in perfect health. I have planted several other trees of this variety from this to time, which are making equally rapid growth.—Mr. ROBERT, in "Garden of the World." The specimen above mentioned grows at an elevation of about 200 ft., and in a cool position. It is thus proved to be peculiarly fitted for moist hill-districts, though so often a failure in low ground.

THE INDOOR GARDEN.

PREPARATION OF LILY OF THE VALLEY FOR FORCING.

THIS beautiful little Lily, despite the preference that exists for new plants, both hardy and exotic, still holds a prominent place in our gardens, and thousands of its lovely spikes of bloom find their way to Covent Garden Market at this season of the year. No flower is more in demand for decorative purposes, both in pots and boxes, and also in the shape of cut flowers during the early spring months than the Lily of the Valley. It is a most accommodating plant; it can be had in bloom from New Year's Day until it is developed in a natural form in our open borders. In order to flower early it may be forced in pots, pans, boxes, and indeed in a variety of ways; but for the embellishment of glass houses, corridors, or sitting rooms, it is best forced in pots or pans. This little Lily, native though it be, is rather capricious as to its likes and dislikes, so far as locality is concerned. In some situations it grows with the utmost freedom, and almost in any kind of soil, whilst in other places it refuses to thrive even in any compost. Where it is found growing the most freely, in woods and plantations, the soil is generally of a sandy character, enriched by fallen leaves, a circumstance which should give us a clue to its cultivation in gardens. Good sandy loam will be found an excellent soil for it. I have seen it grow freely and bloom profusely on a south border in rich kitchen garden mould; but when growing in a sunny situation its foliage soon dies. In the open air, the most suitable position for it would be one with a western or eastern aspect, or even a northern aspect would be more congenial to it than one facing the south. In its natural habitats it is often found growing luxuriantly under the shadow of the common Bracken, showing that a shady situation is that which it prefers. When planted in borders the natural soil should be dug out 1 ft. or so deep, and the bottom should be well drained; then fill up with some light sandy soil and rotten leaves in about equal quantities. Any one having only a small patch of this Lily may readily increase it by taking up the roots now and dividing them, but when thus divided there will not be much bloom for a year or two. In taking up and renewing a bed, in order to have plenty of flowers the present and following years, the roots must not be much separated; on the contrary, take them up in little patches and plant them about 9 in. from each other. In forming a new plantation where roots are no object, they may be distributed over the ground about 3 in. apart. If, at the time of planting, each cluster be reduced to five or six crowns, and they are planted in rows 6 in. apart, with the rows 1 ft. asunder, in three years they will be in fine condition for forcing. When they are required to bloom early in January, the roots must be potted as early in autumn as possible, or quite as soon as the foliage begins to decay, which should not be later than the end of October. In potting, good drainage is required, and, whether grown in pots or pans, they should just be sufficiently large to hold the roots, and no more. A light, sandy soil, with leaf-mould freely added to it, and liberal supplies of water, will be necessary. After potting, they should have a gentle watering, to settle the soil about the roots. The best situation for them afterwards is a cold frame or pit, in which the pots should be plunged 2 in. or 3 in. over the rims in Cocoa-nut refuse, spent Hops, tan, sawdust, or leaves. When they are started into growth they should be placed in the dark till the bloom-stalks and leaves are several inches high. A Mushroom-house, where one exists, is the most suitable place for them. When they are about 4 in. high, they must be exposed to light by degrees. If the pots could be plunged in a bottom-heat of 70°, whilst that at the top, close to the heads, was merely 55° or 60°, success would be made certain. When brought to the light, an empty pot should be turned over them for a few days until the foliage assumes its natural green colour. Thus treated, the flowers will be produced on a robust tall stalk, very different from those forced from the first in light, which dwarfs both flower-stem and foliage. Of course this extra care is only necessary in the case of plants forced very early. Towards spring all these precautions are of

less moment. When the blooming season is over, it is a great mistake to turn the plants out-of-doors, and expose them to cold winds and keen frosts. Having started into growth, if we wish them to bloom a second and a third year, we must keep them growing. A position as near the glass as possible, either in a Peach-house or late Vinery, will suit them perfectly. When properly cared for after blooming, they will flower the next and following years as the first. Lilies of the Valley may now be bought in clumps or patches sufficiently large to fill a 7-in. or 8-in. pot with masses of roots, and if properly managed they will each produce about two dozen spikes of bloom. When these plants, which are imported from France, Germany, and Holland, have been gently forced for a year or two, they will bloom in January with very little forcing, that is, if the bulbs have been properly ripened the previous years. When they have to be taken up from the open ground for forcing, without undergoing a previous preparation for the purpose, only the large, firm bulbs should be selected, and these must be closely packed in the pots: and if they receive a good bottom-heat at first, with a lower atmospheric temperature, they will come all the finer, though it will require the very best of our home growth to equal the clumps that come from the Continent, and which are of such advantage to us in winter and spring. R.

THE CAMELLIA AND ITS CULTURE.*

CAMELLIAS have been known and cultivated in England for nearly 150 years, and, in addition to imported kinds, many excellent varieties have been raised from seeds. In the work of raising seedlings England stood first for many years, Germany followed, and latterly the Italians have been very successful raisers of fine Camellias. A Camellia plant in perfect health should have glossy, dark green leaves, and the bark of last year's growth should be clean and shining. Camellias cannot be treated as many other plants are, inasmuch as they are generally wanted in flower five or six months out of the twelve, and if put into a warm conservatory before their flowers are expanded, they commence growing before they have done flowering, and the consequence is they get no natural rest. If they have begun their growth in the conservatory, they should remain in it or in a similar temperature until it is completed, otherwise they receive a check, and although they may only have made 1 in. of new wood, they will form clusters of flower-buds, and even though disbudded the flowers will be small. But if they can be taken to a cold greenhouse before growth has commenced—no matter how cold it is, so long as frost is excluded—and if they can be kept somewhat dry at the root so as to give them a season of rest until their growing season comes round, the blooms will set strong and vigorous. The longer they are kept in this comparatively cool, dry state the more vigorous they will grow, and the stronger they will be to produce a heavy crop of flowers. They should be kept in this cold and comparatively dry state, with as much air admitted as the season will allow, until every bud is pushing. After that a different mode of management must be adopted, and advantage must be taken of a fine day to examine the state of the drainage. Undo all the crocks that adhere to the ball and re-arrange them carefully; a thin layer of fresh Moss should be put over them, reduce the ball, and replace the deficiency with half good loam and half sheep manure. Give them a good watering, but instead of abundance of air, as heretofore, keep them rather close, not opening the lights till after breakfast, and shutting them down again early in the afternoon. If the sun be at all strong the glass must be shaded, for the young leaves are extremely liable to be scorched while in a young and soft state. When the weather is warm they should be syringed twice a day, a little before noon, and again when the sashes are closed down for the day. This will keep the atmosphere of the house damp, and a genial vapour will arise in the afternoon from the confined heat. In about six weeks, if all have gone on well, they will have finished their growth, and more air may then be allowed, but still they should be shaded, and the atmosphere kept warm and moist

until their flower-buds are well set, which may easily be known by their being so much more prominent than the wood-buds. The plants will have been rendered so excitable by the foregoing treatment that if continued much longer they will be starting into fresh growth, and instead of flower-buds shoots will be formed. As regards soil, Camellias like a good, fibrous, yellow loam. When re-potting, great care, as has been stated, should be exercised as to the drainage, for when they are coming into bloom, either in winter or spring, they require liberal supplies of water; and if the drainage be not perfect the soil becomes sodden, and the roots, notwithstanding their apparent strength, are very susceptible of injury. In potting, the soil should be made quite firm, and the plants should be kept a little close and shaded for a week or two afterwards; then give plenty of air night and day.

As regards the best means of renovating unhealthy plants, the first step is to ascertain, if possible, the cause of the evil, for without some knowledge as to this we can only proceed at random. In nine cases out of ten, failures experienced in the cultivation of this and similar plants arise from the roots being in bad condition. In the first stages, many of the fibres may have perished without any visible change being observable in the leaves or branches, for Camellias do not die off at once, like many other plants, but struggle on for months, and even years, before they get beyond recovery. The first symptoms of bad condition only become manifest on examination, at least until the growing season comes round, for then enfeebled roots produce a stunted growth and a profusion of flower buds. Now is the proper time for arresting the progress of the disease, and, instead of allowing the plants to spend their remaining strength in producing a heavy crop of bloom, let every bud be rubbed off. Thus the strength and substance necessary for maturing a crop of diminutive flowers will be expended in invigorating the wood-buds for next season's growth. If the roots in the meantime have been judiciously treated, the chances are that they will be in a fair way to support a healthy growth next year, and if so, the plant may recover; but to insure a permanent state of health it should not be allowed to flower too freely for a year or two. The best way of renovating diseased roots is to shake as much of the old soil from them as can be done without breaking them, or, better still, soak the ball well, and then rinse the soil away from them, as it is difficult to remove the soil without breaking the fibres; then cut back all that are dead at the points, and also any that appear in any way cankered or unsound, re-pot in the smallest-sized pot that will hold the ball, using the compost already named, and taking care to secure good drainage, and for the next two months keep the plant in a close, cold house with a damp atmosphere, giving it as little water as will keep the soil from becoming too dry. Camellias, when in good health, require liberal supplies of liquid manure, but it should not be given before the flower-buds are formed. Aphides sometimes attack the young shoots, but these can easily be got rid of in the usual way. A small white scale also occasionally infests them, and when that happens cleanse them with water strongly impregnated with soap, applied by means of an old tooth-brush.

Cut Flower Buds of *Eucharis amazonica* Opening in Water.—Early last autumn I shifted a quantity of plants of this *Eucharis* into fresh soil and larger pots; in a week or two afterwards I found that they had pushed up several flower-spikes, and not wanting the flowers I determined to cut them off with the view of strengthening the plants. One of the spikes, a little more developed than the rest, after being thrown away was picked up by a little girl, who, admiring the peeping white in one of the buds, placed it in a vase on the mantel-shelf, and I was much surprised in about a fortnight after to find that one, the most forward bud, had expanded into a perfect flower. Shortly after another opened, and at Christmas a third, fully seven weeks after the spike had been cut; all the flowers were perfect, except a little paleness in the green stripes on the corolla of the last. These facts may perhaps be of service to those who have weak plants, for if the flower-buds be formed, they will certainly expand if cut and placed in water in a warm room with plenty of light. Mine were kept in a dark room, which will perhaps account for the want of colour in the last flower.—SANGUINEA.

* Read by Mr. SPREADBURY at a meeting of the Wimbledon Gardeners Mutual Improvement Society.

EFFECTS OF THE LATE MOIST AUTUMN ON EARLY RHODODENDRONS.*

The autumn of 1876 has been particularly unsuitable for ripening the flower-buds of many of these plants, which are generally lifted during the months of October, November, and December, for the purpose of subjecting them to artificial heat, and thus bringing them into flower during the winter season, both for conservatory and table-decoration. Rhododendrons, particularly the early-flowering varieties known and cultivated as the R. Nobleanum breed, are exceedingly useful for this purpose. They are lifted after the flower-buds have been formed, and are forced almost every year. Although many of those lifted last autumn were apparently well furnished with buds few of them seem to have been properly ripened, as scarcely any flowers have been developed. The scarcity of Rhododendron flowers at this season seems very general, particularly in the gardens and nursery establishments round Edinburgh, and I am inclined to think, from the high price of flowers quoted in Covent Garden Market, that the scarcity is not wholly confined to this district. Judging from the unnatural state of these Rhododendrons already experimented on, I have no hesitation in saying that the number of imperfect blooms has in a great measure been caused by the unusually long want of sunshine during the autumn and winter months, and the almost incessant rains experienced during that time. At this period, the effect is certainly very marked on all the early-flowering Rhododendrons, but what it will be on the late-flowering varieties, as well as on the blossoms of fruit-trees, both wall and standard, it is difficult to say. Rhododendrons as a rule, particularly if the buds be well ripened in autumn, and even under an ordinary clear sky, are generally much more easily forced into bloom than specimens put into heat, which have not been subjected first to a certain amount of autumn or winter frost. Even the frost of last November has had no effect on those already tried, the buds not being sufficiently matured beforehand for this purpose. Early-flowering Hyacinths, Tulips, and Narcissus, as well as many other plants, are also observed to be far from strong, probably owing to the late sunless weather experienced since they were subjected to heat.

J. McNAB.

Carnation Souvenir de la Malmaison.—This beautiful Carnation is neither so well known nor so much grown as it deserves to be; here it succeeds admirably. By layering 1 get vigorous plants to commence with: about the middle of July, when the plants have all flowered, I plunge them in their pots under a north wall or shady place, layer them in the usual manner, and in about three weeks they become well rooted. I pot the young plants into 18-sized pots, in soil consisting of three parts dry loam and one part rotten manure and rough sand. The weakest may flower in the above sized pot, but the strongest will require to be put into 32-sized pots before forcing has commenced, and until that time they should be kept in a cool frame. The temperature in the forcing-house should be from 55° to 65°. Thus treated, they may be had in bloom for several months in succession.—R. B. FULLER, Hillgate.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Pelargonium Marie Lemoine.—Among a hundred or more varieties of which I was well acquainted, new and old, this, according to "M. Les Banaux" is not surpassed. The individual flowers, of a delicate rose colour, as well as the truss, are the largest of their class. It is difficult to select a more beautiful one than Marie Lemoine when freely blooming. Every truss is useful a specimen. The leaves are large, crisp, and vigorous, while the plant is compact and valuable whether for the conservatory, window, or garden.

Camellia Buds dropping.—When I came to the gardens of which I now have the charge in August last, I found the plants in a bad state, some covered with mealy bug and brown scale, others with green fly, especially the Roses in the conservatory. The Camellias, on the contrary, were covered, from which I have thoroughly cleared them. Some of the Camellia buds are, however, dropping, and I have time and time again, for two months, touched the plants and redressed them. They are in the conservatory, in a temperature varying, as a rule, from 45° to 55°, but on Friday nights falling to 40°. On Christmas morning and on three other days I lamped them overhead, gently with the syringe, and my only regret is that I have not yet got the buds, which come gently down. I lamped them because I was under great heat and the atmosphere was dry. My own opinion is the buds are at fault, as in the case of some of the plants the buds are green, although the shells or outside is brown.—R. C. T., Chelsea.

The brown state of the buds is almost a certain indication that the plants are weak and in a bad condition—a circumstance quite sufficient to account for the buds dropping. In addition to this the pressure in the conservatory remains close when plants are so badly affected with it that it attacks the buds, frequently causes them to fall some time afterwards. Spraying overhead is not a good way of getting rid of the mealy bug, it is much better done by means of evaporating spirits on the pipes which should exist in numbers per square foot of the surface of the house, and which will continuously but imperceptibly keep the air in the room cool. Spraying overhead is not at all likely at the time I speak of, and the buds will drop off later in the season, when growth is at an end, and, of course, it would not likely have that effect.—T. BARNES.

PLATE LVII.

HYBRID PERPETUAL ROSE.

COMTESSE DE SERENYE.

Drawn by H. NOEL HUMPHREYS.

First amongst the many worthless new Roses that have been proclaimed of recent years upon English Rose growers by their French names, the subject of the present plate stands forth as an agreeable exception to the rule. It was introduced by M. Lacharme, of Lyons, in the autumn of 1874, and I find, on reference to his prospectus, that he sent out two other kinds at the same time, viz., Hippolyte Jamain and Souvenir du Baron de Semur. The former of these has already proved itself a real acquisition, but the latter, although a fine dark flower, is of such weak constitution and growth, as to be totally unfit for English gardens. The flowers of Comtesse de Serenye when produced out-of-doors may be described as delicate pink in colour, shaded with rose, and inclining to salmon in the bud. They are of large size, very full, and possess all that perfection and symmetry of form which has hitherto been considered almost a special characteristic of the variety Comtesse de Chabillard. The plant succeeds well grown on either the Manetti or Brier stock; the growth is vigorous, and the habit and constitution good. Under glass the flowers are rather paler in colour than when grown out-of-doors; but they retain all their other good qualities, so that for forcing purposes and pot-culture generally it stands unsurpassed among pale-coloured Roses. Although as yet comparatively new, it bids fair to prove itself valuable both for exhibition purposes and for garden ornamentation. The blooms will, however, require protection in unfavourable weather if their delicate colour is to be carried unsullied to the show room. There are two other varieties bearing similar names, and which must not be confounded with the one under description: they are Comte Alphonse de Serenye and Comtesse Vally de Serenye—neither of them possessing any great value. Amongst other good new Roses sent out at the same time as Comtesse de Serenye may be mentioned Hippolyte Jamain alluded to above, Antoine Mouton, La Rosière, Villaret de Joyeuse, E. Y. Teas, Star of Waltham, and Amélie Hoste amongst the Hybrid Perpetuals; and in the Tea-scented class, Perle des Jardins, Marie Guillot, Jean Daffer, and Comte de Sembui. ARTHUR W. PAUL.

INSECT FERTILIZATION AND CLOSED FLOWERS.

SINCE I object to erroneous quotations as much as Dr. Asa Gray or Mr. Meehan can, I should have written to you before this to correct the error—whether misprint or mis-statement, in my former letter, had I not thought it too obvious to mislead. I wrote, or thought I wrote, not Wistaria, but Glycine, and referred to p. 294 of the flora of North America. This was an error, since the close ally of the cleistogamous Glycine, Amphicarpea, is the plant there mentioned as cleistogamous; but I never thought of terming Wistaria cleistogamous. I much regret that Mr. Meehan should think me or Dr. Gray—for the charge applies equally—ungenerous because acting on the principles of a self-interest, and of an distrust. As we preferred trusting Mr. Darwin's observations when Mr. Meehan's conflicted with them. If, however, Mr. Meehan thinks I have done him an injustice, recognising the great value of his work, I most heartily apologise. As to the cleistogama, or closed flowers, I bear space, however, for a few remarks, based partly on Mr. Darwin's recent work. The necessity of occasional crossing laid down by Knight and Darwin was exaggerated by Hildebrand and Delpino, until Axell, a Swedish botanist, reasserted the limitations of the original rule. He first laid stress on these cleistogamous flowers, so named by Kuhn, and made one suggestion, at least, which seems important, viz., that heat, being evolved in flowering, would be economised by plants in a low temperature producing reduced flowers. As an instance, he gave Lamium amplexicaule. Mr. Darwin has well insisted on the point that adaptations to secure cross-fertilization by avoiding self-pollinization risk the entire fertility of the plant, whilst reproduction is of far greater importance than crossing. Thus it would be to the advantage of an insect-fertilized plant deprived of its insect visitants to produce self-fertilizing flowers. Nature, as we know by the facts of dichilism, diochamy, and dimorphism, often uses divers means for one end; so we find in some species entirely self-fertilized (because never opened) flowers on the same plant with others, which, I believe,

* Read before the Botanical Society of Edinburgh, Jan. 11, 1877.



secure an occasional cross, as in *Viola odorata* and *Amphicarpææ*; whilst, as Dr. Müller has shown, in other species two distinct forms occur in different localities, one normally cross-fertilized, the other normally self-fertile (though from their corollas I should imagine these latter to be occasionally crossed by insects). Perhaps we may see in the extreme plasticity of the corolla in *Viola tricolor*, which has only been in cultivation since 1687, a clue to its entire suppression in the cleistogone flowers of *V. odorata*. In this connection also I would refer to Dr. Müller's view as to the evolution of various forms of *V. tricolor* inhabiting different altitudes through their adaptation to different groups of insects.

G. S. BOULGER.

Cressingham, Reading.

HARDY CRINUMS.

It is probable that the South African *Crinum*s, at least those which grow in the latitude occupied by the hardy and half-hardy Iridææ, will also be found more or less hardy under favourable circumstances in England. I have only tested the capabilities of two of them as follows:—*C. capense* is truly hardy here at Welton (near the centre of our island), where it thrives, flowers, and produces seed in abundance under water round the margin of a pond. This and a paler variety called *C. c. fl.-albo* in the catalogues, were formerly to be had at 1s. 6d. a bulb, and might doubtless be had cheaper if a demand arose for them. The pure white variety is more tender and does not succeed in the pond. The variety called *C. riparium* is described as being of a richer purple colour, but my specimens raised from seeds of Herbert's plant do not differ materially from the normal form. *C. campanulatum*



Crinum aquaticum (campanulatum of Herbert).

(Herbert) syn. *aquaticum* is hardy also, but perishes under water treatment of any kind, for which reason Herbert changed the name as propagating an error. I have never flowered it, as it is one of the many bulbous plants in which the flowering is impeded by the production of interminable offsets. *C. revolutum*, another possibly hardy sort, is not, I believe, now in the country; it very much resembles *C. campanulatum* in foliage, flowers more freely, and does not expend itself in offsets. I may remark here that the *Amaryllis revoluta* of the Cape bulb sellers is merely the *Belladonna Lily*. *C. variabile* is another small offset-bearing sort, said to be quite hardy. I have lost it, and do not think it exists in our collections. Several of Herbert's hybrids from *C. capense* proved hardy at Spofforth. Many of these were sent to India and elsewhere by him, and I suspect some of them have come back to us as new species. A large spherical bulb, occasionally received from the Cape and also from India, with long trailing scabrously-margined foliage, seems likely to be one of Herbert's crosses between *C. scabrum* and *C. capense*. There is another sort which is now and then received from the Cape closely resembling *C. capense*, but somewhat larger and not so hardy. It may be known by the brittleness of the bulb coats. I fear there is no chance of the Cape Coast family (*Ornatæ* of Herbert) ever proving hardy enough for open-air cultivation in our climate. I do not possess *C. Mooreanum*, which appears to give good promise as to hardness. *C. capense* is bold and handsome, and well worthy of cultivation as an aquatic.

R. T. CLARKE.

Welton Place, near Duventry.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Camellias are plants not at all difficult to manage, yet they are by no means always seen in a satisfactory condition. They cannot bear being dry at the roots, and when this happens, particularly at the time they are making growth, they become stunted, and the roots are weakened, the flower-buds falling without opening; this will also occur if the atmosphere be too dry, when they ought to be expanding. They must not, however, be over-watered.

Bedding Plants.—Now is the time to commence propagating bedding plants. If seeds of any of the Silver-leaved *Centaureas* be now sown in heat, and pushed well on, they will make fine plants by bedding-out time; they should be sown in shallow pans in fine soil, containing a little sand and well-rotted leaf-mould; let the seeds be only just covered with soil, and keep it slightly damp. If *Ageratums* have to be raised from seeds they should also now be got in; let these, too, have shallow pans filled to within 1 in. of the rim, with a mixture of equal parts of leaf-mould, fine loam, and a small quantity of sand; press the surface smooth and sow the seed, covering it with a little soil; let the pans be in a temperature of 50° or 55°, and as soon as the young plants appear give them plenty of light, or they will draw; it is better, however, to raise *Ageratums* from cuttings, as they cannot be depended upon to come true from seed. Golden *Pyrethrum* is best raised from seed, as propagated in this way the plants have not such a disposition to flower, and are finer than those obtained from cuttings or division; sown now in warmth they will soon be up, they can then be placed in boxes or pots. For carpet bedding, such subjects as *Alternantheras* and the crimson *Iresine Lindenii* are almost indispensable; their propagation should be at once attended to. Look carefully over all the stock of bedding plants to see that they are free from aphides; if any be found fumigate without delay. *Verbenas*, more particularly the white kinds, are very liable to the attacks of mildew; on its first appearance they must be dusted with sulphur. It will be well now to put the store plants of *Verbenas* in a little heat to cause them to push young growth for cuttings; 50° by night will suit them well; a few degrees more, however, will not injure them; let them be on a shelf or in some place where they will receive plenty of light, and keep them regularly supplied with water; an application of liquid manure once a week will be beneficial to them, and will cause the production of more cuttings. *Heliotropes*, *Lobelias* of the speciosa section, and *Ageratums*, should also be put in warmth, for if the cuttings be not soft and young they do not root so readily. *Pelargonium* cuttings, several of which have been placed in 5-in. or 6-in. pots, should not be too much crowded; unless they can have a temperature of 45° to induce them to form roots it is not advisable to pot them off yet. Look over roots of *Dahlias* and *Salvia patens* to see how they are keeping; if it be found that the old stems of the *Dahlias* are mouldy and wet they should be moved to a drier place, or very likely the eyes at the collar will die; but do not put them where there is enough warmth to cause them to start into growth. The old *Humea elegans* is very handsome, either grown as a pot specimen for greenhouse decoration or planted out; if those sown last summer have plenty of roots, shift them now into pots big enough to serve till planting-out time arrives. Should they be at all neglected in the matter of root-room, the bottom leaves will be injured, thereby ruining the appearance of the plants; give them good loam well enriched. Aphides must be guarded against, for if left for any length of time undisturbed they spoil the leaves. *Rhododendrons*, Double *Prunus*, Ghent *Azaleas*, &c., should at regular intervals be placed in heat to bring them into bloom. Employ sufficient care and forethought in this matter so as not to have a superabundance at one time with a corresponding scarcity at another.

Potting Soil.—Loam, peat, and leaf-mould ought to be got under cover and spread out in open sheds, so as to have it in a sufficiently dry state for use when the time for potting arrives. The exceptionally wet weather we have had for some time will have made it doubly necessary to see to this at once.

Frames.—Consequent upon the mildness of the season more air must be given to the occupants of frames, or they will be so tender that they will be very susceptible to frost when it comes. This applies to plants as well as to Lettuces, Cauliflowers, &c., the latter of which are liable to button—that is, form small, premature, useless heads—if they do not receive enough air. Another Mushroom-bed may now be made similar in materials and preparation to the last. A good look-out should be kept for slugs, for the present wet, mild weather is extremely favourable to these unwelcome visitors.

List of Vegetables.—The innumerable varieties of seeds offered in catalogues are a source of great difficulty to amateurs in knowing what to select. When first "The Amateur's Garden" found

a place in THE GARDEN, a list of vegetables was given for the assistance of amateurs. I have thought it will be of service to again give one, with the addition of a few more varieties of sterling merit:—*Peas*—Saugster's No. 1, William the First, Dr. Maclean, Cullingford's Champion, James' Prolific, which is the best of the Veitch's Perfection Type, Emperor of the Marrows, and Ne Plus Ultra. *Potatoes (Kidney)*—Myatt's Ashleaf, Veitch's Improved Ashleaf, and Lee's Hammersmith Kidney; *Round Kinds*—Early Oxford, York Regent, and, for the latest, Paterson's Victoria. *Cabbage*—Cocoonant and Entfield Market. *Savoy*—Dwarf Green. *Carrots*—Early Red Horn and James' New Scarlet. *Cauliflowers*—Early London and Veitch's Autumn Giant. *Celery*—Cole's Crystal White, and Wilcox's Dunham Red, which has appeared under the name of Leicester Red; it is also very nearly alike to, if not quite the same as Williams' Matchless Red. *Brussels Sprouts*—Roseberry and Imported Dwarf. *Broccoli*—Backhouse's White, Snow's Winter White, Veitch's Self-protecting Autumn, Williams' Alexandra, and the old Purple Sprouting, which is one of the most useful, finest-flavoured, and long-producing vegetables grown. *Kale*—Dwarf Green Curled and Cottagers'. *Broad Beans*—Mazagan, Early Long-pod, and Seville Long-pod. *French Beans*—Negro, Paris, Red Flageolet, and Osborn's New Forcing, for pots. *Runner Beans*—Scarlet. *Beet*—Dell's Crimson, White Silesian. *Cress*—Plain-leaved and American. *Cucumber*—Rollisson's Telegraph. *Leek*—Musselburgh. *Endive*—Green Batavian and Green Curled. *Lettuces (Cabbage)*—Wheeler's Tom Thumb, Neapolitan, and Hammersmith Hardy Green; (*Cos*)—London, Victoria, and Black-seeded Bath. *Parsnip*—The Student. *Parsley*—Myatt's Curled, and Veitch's. *Onions*—Nuneham Park, James' Long-keeping, Brown Globe, Brown Tripoli, and The Queen, a small, very early kind. *Radishes*—Short-topped Frame, Red and White Olive-shaped. *Spinach*—Round and Prickly. *Tomatoes*—Hathaway's Excelsior and Orangefield. *Turnips*—Early White Stone, Red-topped American Stone, and Chirk Castle; this latter is a black-skinned excellent variety.

Ground-work, &c.—Whatever new ground-work or alterations are not yet finished should, notwithstanding the wet state of the ground, be pushed on without delay, so as to get them completed as quickly as possible; for, should frost set in, it may last until the season for planting with a reasonable chance of success is over, for we must by no means fancy that the time for severe weather occurring is past.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

January 22.—Sowing some pots of *Agrostis nebulosa* and *pulegiella*; also a few rows of Little Gem Peas close to Peach wall. Potting plants in Lycaste-house; also *Masdevallias* and *Selaginellas*. Potting off young plants of *Pentas* and *Scutellaria*. Re-potting plants of *Calceolaria aurea floribunda* into 8-in. pots for spring flowering. Putting in cuttings of *Nasturtium*, *Monochaetum*, and *Heliotrope*. Putting in *Vivae* eyes. Planting remaining fruit trees, and filling another pit with Potatoes from pots. Putting in plants to force for stands and cut flowers; also another batch of *Asparagus*. Shifting the *Humeas* into 10-in. pots. Putting *Asparagus* tops over Peas just peeping aboveground to keep off sparrows, and to ward off frost; owing to the lightness of this material the Peas grow right through it. Painting Apple and Pear trees with three parts lime and one part soot, mixed with water to the proper consistency. Examining basketed *Dendrobiums*, and removing any decayed material. Watering Cucumbers, but taking care not to get them too wet. Sorting Apples and Onions. Making-up hotbeds for Lettuces, Cauliflowers, Carrots, Radish, tree Carnations, and Violet cuttings. Turning manure for Celery. Disbudding pot Vines. Keeping second Peach-house just coming into flower at 55 at night and 60 by day. Dipping *Cinerarias* into Tobacco-water for fly.

Jan. 23.—Digging Rose-garden borders; also land for succession Peas. Sowing a border of Parsley, Carrots, Radishes, Alexandra and Paris Cos Lettuces, and Walcheren Cauliflower in frames. Potting some *Taberones* and placing them in heat to force. Putting in cuttings of *Coleus*, *Crotons*, and more *Alyssums*; also a little Musk in slight heat weekly. Nailing Roses on walls. Putting some red worsted over Peas that are coming up to keep off birds; also sooting Gooseberries for the same purpose. Giving pot Vines some Standen's manure. Mixing manure for second crop of Potatoes. Throwing some rough strawy manure into a heap for another Mushroom-bed. Finishing pruning Gooseberry trees. Thinning plantations. Keeping first Strawberry plants a little drier as blossoms are expanding.

Jan. 24.—Putting in cuttings of *Ageratum* and *Solanum capsicastrum*; also old plants of *Achyranthes*, *Alternantheras*, *Heliotrope*, and *Mesembryanthemums* into warm *Vivary* to induce them to furnish cuttings. Planting out Potatoes from pots. Getting all Roman Hyacinths in flower into greenhouse. Putting Kidney Potatoes into hampers to sprout. Cleaning scale off *Camellias* and one or two other plants. Making up hotbed for Tree Carnation cuttings. Loosening shoots of Peach trees on wall ready for pruning. Clipping Privet hedges.

Jan. 25.—Digging all vacant ground. Sowing Advancer and Laxton's Alpha Peas, Long-pod Beans, some Dutch Turnips, and Campbell's and Emerald Melons. Potting Mrs. Pollock *Pelargoniums*. Shaking out and re-potting *Daturas* and *Erythrinums*. Putting in more cuttings of *Salvia patens*, *Fuchsias*, *Nepetas*, *Alyssum*, *Agathas*, *Achyranthes*, and *Coleus*. Planting Seakale for forcing; also Potatoes as fast as they are ready for planting. Getting soil in to warm for potting Beans. Examining *Pelargonium* pits. Tying Pillar Roses. Sponging *Phalaenopsis* with Fowler's Insecticide to kill thrips. Giving first Hauburgh-house a good watering and dressing it with bone-dust. Forking amongst Gooseberry trees, giving them a sprinkling of guano. Removing suckers from fruit trees. Disbudding Muscat Vines and thinning the bunches as soon as ready. Keeping second Peach-house in which buds are swelling at 55 at night. Giving increased air to *Vineries* when they reach 90° so as to prevent their exceeding 95°, being careful to shut off fire-heat as much as possible. Plants in flower:—Yellow and other Roses, scarlet Van Thol and double Tulips, *Crocuses*, *Mignonette*, *Deutzia gracilis*, *Monochaetum eusifolium*, *Tydaes*, *Begonia incarnata*, *Lily of the Valley*, *Thyracanthus rutilans*, *Primulas*, *Azaleas*, *Dielytra*, *Hyacinths* (red, blue, and white), *Daphne indica*, *Calla aethiopica*, *Cytisus Attleiana* and *cavariensis*, *Cinerarias*, *Camellias*, *Acacias*, five kinds of *Epacris*, *Erica gracilis autumnalis*, and *E. hyemalis*.

Jan. 26.—Sowing Golden Feather *Pyrethrum*, *Centaurea argentea*, and more *Mignonette* in pots. Potting *Kalosanthes* into large 60-sized pots in very sandy soil, and placing them on south side of greenhouse. Potting and basketing *Dendrobiums*. Potting 500 Ash-top Potatoes. Striking cuttings of *Dracena terminalis* in strong bottom-heat. Planting more Potatoes in pits; also Ash-leaved Kidney and Myatt's under Peach wall. Fumigating East Indian Orchids to kill thrips. Liming and sooting the Gooseberries and Currants. Manuring borders in Peach-house. Preparing cradles for hardening bedding material. Inarching a Muscat Vine with Royal Ascot.

Jan. 27.—Sowing *Cyclamen* seed and putting it into cutting pit; also *Auricula* seed, and putting it into greenhouse; likewise a few Tripoli Onion seeds in heat, and Red and White Celery under glass on a manure bed. Potting *Gardenias*. Dividing Maiden-hair Ferns, and putting them into 60-sized pots. Potting some autumn-struck *Fuchsia* cuttings. Layering Tree Carnations. Re-arranging *Orchid*-houses. Putting one-year old Vines in first *Vivary* to break. Shifting some *Rhododendrons* into peat and sand for forcing. Nailing *Apricots*. Covering Celery with straw to protect it from severe frost. Watering under pipes in East Indian *Orchid*-house twice daily, and syringing the plants early in the afternoon. Keeping Strawberry-house dry where plants are in bloom. Top-dressing Orange trees with half manure, half loam; also *Lilacs* and *Laburnums*. Making-up Potato beds for frames. Putting soil in to warm for young *Cucumber* plants, and getting leaves and other fermenting material in pit ready for them. Making second Strawberry-house ready for plants.

Orchids.

Many *Dendrobes*, particularly the knotted-stemmed varieties from Burmah, will now be starting into growth, but notwithstanding that the cultivator must not be tempted into giving them a too copious supply of water or too high a temperature, or the young shoots will get ahead and the flowers will be lost. The plants should be kept moderately dry, cool, and in an airy situation until the flower-buds are well advanced, when the maturing of the growth may be attended to without risk. That most lovely of all the *Dendrobiums*, *D. Wardianum*, very frequently makes growth about 1 in. in height at the latter end of the summer, immediately after the mature growths have ripened off and at the commencement of the resting season; but if the plants be treated as resting plants, these premature growths will remain in the same condition for months until the growing season arrives, when they will push away freely. In consequence of the deficiency of sunlight for some time past, *Orchid* blooms have been slow in opening and are deficient in colour; but it is better to allow the plants to remain in their respective houses and wait patiently for the flowers to open than to endeavour to force

them into blossom by placing them in a higher temperature. Well-advanced buds are often lost by a sudden change of that kind, and even when they do open, when so treated they do not last nearly so long as if allowed to progress more gradually. The colour of the flowers may be heightened, and their opening promoted by placing the plants on inverted pots, and setting them on the lightest side of the house. The present is a good time to re-pot the cool-house *Odontoglossums* from New Granada, but none of them should be potted for the mere sake of potting them. Any that are doing well, and that are in good material, with the Sphagnum Moss growing over the top, should have the pots cleared of any green deposit that may be on them, but the plants otherwise should be undisturbed. The *Odontoglossums* should be carefully potted into pots filled with clean drainage almost two-thirds of the way up in a mixture of equal proportions of fibry peat and living Sphagnum. Where the plants are unhealthy and have but few roots, it is a good plan to cover the back pseudo-bulbs about one-third with the material used in potting, leaving the base of the first pseudo-bulb just above the surface, so that the young growth may not be obstructed. Most Orchids dislike any of the pseudo-bulbs being partially covered, but these seem to be exceptions to the rule, for one frequently sees plants of *Odontoglossum Alexandræ* which have lost the leading growth push new and strong growth from the back pseudo-bulbs 1 in. or more below the surface.

JAMES O'BRIEN.

COTTAGE GARDENING.

Herbs.

NO GARDEN, however small, can be said to be complete without its bed of Herbs, which are indispensable for flavouring purposes. With the exception of Parsley, Herbs are best grouped together in small patches in proportion to the demand, but yet at the same time each patch should be kept distinct. To keep them in strong, vigorous condition, they should be renewed by division, and in a few cases by seeds or cuttings about every two or three years. Some kinds, if they stand too long on one piece of ground, lose their vigour, and the winter, if severe, has more effect upon old plants than young ones, and may sometimes, by killing them off, occasion a scarcity; but where the plantations are frequently renewed this seldom or never occurs. Herbs are not at all particular as to soil or aspect, but one or two kinds, such as Tarragon, should not be planted in wet, cold soil if it can be avoided. From March to the end of May is a very suitable time for putting in cuttings, sowing seeds, or dividing the roots, and if called upon to speak more exactly, I should say get all such done in April if possible. The cuttings or slips—as they will succeed well if slipped off with a heel—may be planted with a dibble, and of course should be planted firmly. In planting cuttings at all times and in all places the length of the cutting should be considered, and the hole only made deep enough for the base of the cutting to rest on the bottom. Inexperienced planters often unthinkingly practise what is termed “hanging” when planting either plants or cuttings with a dibble; that is, they make the holes deeper than the length of stem, and, consequently, the roots of the plant or the base of the cutting, as the case may be, hang suspended in the hole, and cannot obtain a sufficient grasp of the soil to become quickly established, and often perish in consequence. Of the Herbs that are commonly used for flavouring purposes, and which are indispensable, are Thyme (two varieties, Common and Lemon), which may be increased either by seeds or cuttings or division of the roots; Sage (Green and Red), which may be propagated by seeds and cuttings. Of Mint, several varieties are grown, but the Spear-mint is most useful, and is increased by division and by cuttings with a bit of root attached in spring or early summer; it will grow in any position, but improves by being transplanted occasionally. Fennel may be increased by seeds and division of the roots, and Winter Marjoram mostly by division. The following also are not unfrequently found in gardens, and are often used to make cooling drinks and for medicinal purposes, viz., Rue, Horehound, Hyssop, Lavender, Balm, Wormwood, and Rosemary, all of which may be increased by cuttings and seeds. Camomile is best propagated by division of the roots, and it should be frequently transplanted in firm land. Amongst Herbs that are highly esteemed for flavouring purposes in large establish-

ments, and that are usually raised from seeds in spring—frequently assisted by artificial heat—may be mentioned Basil (Bush and Sweet), Summer Savory, and Sweet Marjoram. They should be sown, if no hotbed be at hand, the first week in May in light, rich soil in a warm, sunny place, be shaded and kept moist, and the young plants thinned out to 4 in. or 6 in. apart. If a small space in a frame or hotbed can be spared, sow a few seeds in a pot or pan early in April, harden the young plants off, and plant them out in May. By this means the plant will gain an early start. Chervil may be sown thinly in March, again in May, and again in August. All Herbs that require to be dried for winter use should be cut just as they are coming into flower, and when quite dry, they should be tied in small bunches, and hung up in some open, airy building or shed, and when thoroughly dried preserved in wide-mouthed bottles or jars and kept close. Basil and Summer Savory are tender, and should be cut and dried before frost is expected. When Herbs are dried in the sun they dry too rapidly, and lose some of their strength.

Parsley.

Parsley should be sown about the end of February or the beginning of March on well pulverized land in drills 1 in. deep and 1 ft. apart. It may either form an edging to another crop or occupy a bed or patch by itself. When large enough, thin out the plants to 4 in. apart, planting the thinnings elsewhere if necessary. Another small sowing should be made about the beginning of July, and be thinned out and treated the same as the early-sown lot. Some may think that in small gardens this late sowing is unnecessary. All I can say is, if I were compelled to depend upon one sowing only, I should sow at midsummer in preference to early in spring, and for this reason: Parsley sown early, and required to be gathered of a moderate size, becomes pretty well exhausted by the following spring, and hardly any precaution will prevent it rushing into flower before the new crop may be considered fit for gathering. But the crop from a midsummer or July sowing comes in at a season when everything is full of growth, and has a chance to get thoroughly established, and this is one advantage in favour of the permanency of the plant. Another and the main reason that may be advanced in favour of this time for sowing is, the plants have not the same tendency to flower and seed the following season. In fact, some plants do not seem disposed to flower, and even those that do, if the flower-stems be cut or pinched off before they make much progress, after a weak effort or two they give up the attempt to produce flower-stems and produce foliage instead in abundance. Any one who has hitherto depended upon the early spring sowing, and has found a difficulty in making the two crops meet, should try this plan. Strictly speaking, Parsley is a biennial, and, like other biennials, if sown after midsummer its season of flowering will be proportionately late; and many plants will miss flowering altogether till the following year, and this is a great advantage when plants are grown for their foliage alone. Some means of sheltering the crop should be devised and prepared before bad weather sets in. Straw hurdles or forked sticks may be placed round the bed on which other pieces are placed, when the whole may be lightly covered with Fern or dry straw.

E. HOBDAV.

How to Keep Bouquets Fresh.—There are various receipts for keeping bouquets fresh; some place them in moist sand; some salt the water in the vases, and others warm it; others, again, use a few drops of ammonia. My rule is to cool the flowers thoroughly at night. When warm weather has made Roses droop and their stems limp, I clip them a little, allow them to float in a marble basin full of very cold water, and in the morning they come out as fresh as if just gathered. All flowers, however, will not stand this treatment. *Heliotropes* turn black and fall to pieces under it, *Azaleas* drop from their stems, and *Mignonette* soaks away its fragrance. For these I use dry, cold air; I wrap them in cotton wool and set them on a shelf in the ice-chest. Flowers thus treated keep perfectly for a week with me, and often longer.—ST. NICHOLAS.

India-rubber Bands for Trees.—A New Haven company is making a new article to protect trees from worms. The invention is an India-rubber band with a single bristling row of brass pins set so close to each other, like the teeth of a comb, in the middle of the strip, that worms cannot crawl above it.

HISTORY OF THE GOURDS.

OF GOURDS, as we all know, there are several varieties, some of them beautiful in form and colour, others of very large size. Those which are commonly cultivated in England for food are the Pumpkin (*Cucurbita Pepo*), and the Vegetable Marrow (*C. Saccada*). Gourds were well known to the ancients, and we find them mentioned in several places in the Scriptures. They furnished models, according to the marginal reading of Knops (1 Kings, vi. 18), for some of the carved work in Cedar in the temple of Solomon. The Greeks appear to have been acquainted with several varieties of the Gourd, and they were to be seen at Athens with other products of the spring and summer, in the cold season of the year; for Aristophanes, in his "Seasons," speaking of the glories of that luxurious city, says:—

There you shall at mid-winter see
Cucumbers, Gourds, Grapes, and Apples,
And wreaths of fragrant Violets,
Covered with dust as if in summer.

* * * * *
There you may see fine Pumpkins joined
To the round Rape and mighty Turnip,
So that a stranger well may fear
To name the season of the year.—ATHENÆUS, b. 9, 11.

Diocles states that the best round Gourds are those grown near Magnesia, a town of Asia Minor. Euthydemus, the Athenian, in his book on vegetables, states that the seeds of the long Gourd were originally introduced from India. Pliny, in his "Natural History," tells us that Gourds resemble the Cucumber in their manner of growing, and he classifies them into two primary kinds; the first, which, from the rapidity of its growth, shoots upwards and creeps along the rough surfaces of walls and covers the roofs of houses in a very short time, he calls the "Roof Gourd." This kind, he says, bears a fruit of considerable weight, which is quite immovable by the action of the wind, although the stalks are of a remarkable thinness. This plant is considered by Fée to be *C. loogior* of Dodonæus and J. Bauhin, the long Gourd and other varieties probably of the Calabash Gourd—the *C. leucantha* of Duchesnes. The second kind mentioned by Pliny is that which creeps upon the ground, most probably the Pumpkin and its varieties. Gourds were held in higher estimation by the Romans than either Melons or Cucumbers, as they were employed for more useful purposes than the former fruits. They were considered a light, mild, wholesome food. The young and tender stalks used to be cooked and served up to table as a good dish. The fruits of the Roof Gourds were considered superior to those which crept on the ground. In Pliny's time large Gourds were used as jugs and pitchers in the baths; but long before that time he tells us they had been employed as casks for keeping wine. Nisander tells us that the ancient Greeks used to preserve Gourds by the following methods:—Cutting them into moderate-sized pieces and stringing them like beads to dry in the air; then smoking them. When wanted for use, each piece was well washed and put into the stewpan with various herbs, such as Cabbages, Endive, and dried Mushrooms. The Romans also preserved Gourds and Cucumbers, we are told, for some months, by putting them into brine. Pliny states that the seeds of the Gourd ought to be steeped in water before sowing, and the proper time for that operation should be between the vernal equinox and summer solstice, about the season of the festival celebrating the anniversary of the foundation of Rome called *Purilia*. The Roman cultivators used to force Gourds to grow into various fantastic shapes by putting them into moulds when quite young; thus we are told that they were made to resemble a dragon, a leg of a man, &c. Pliny speaks of wild Cucumbers and Gourds which were possessed of certain medicinal properties, and gives us a list of eleven remedies for which they were applied. The leaves of the Pumpkin steeped in wine were considered good for the bites of dogs and insects, called *Sep* by the Greeks, perhaps one of the centipede tribe. The seeds were used as a charm to cure the ague. According to L'Obel, the Pompion or Pumpkin was introduced into this country from the Levant in 1370, and till about 1815 this was the principal plant of the Gourd kind cultivated in the British gardens. Parkinson mentions in his "Paradisi" (1629), that in his time only one kind of Pompion was cultivated, but that it would be a waste of time to recite all the forms and colours in which Nature listeth to show herself in this plant. In using it as a culinary vegetable, he tells us that it was customary to take out the inner watery substance with the seeds and fill up the place with Pippins, and, having laid on the cover which was cut off from the top to take out the pulp, bake them together; and the poor of the city as well as the country people do eat thereof as a dainty dish. Gerard, in his "Herbal" (1636), says there be divers sorts of Gourds—some wild, others tame for the garden; some bearing fruit like unto a bottle, others longer and bigger at the end, keeping no certain form or fashion. He tells us that the juice of the Gourd being popped into the ear with oil of

Roses is good for the pain thereof, proceeding from a hot cause. According to Miller, Pompions were the Melons of our early horticulturalists, which word was corrupted into millions, a name by which they are still known in some parts of England by the uneducated classes. It was usual in Miller's time, as in the present day, for the English cottagers to plant Pumpkins on their manure-heaps in the fields and gardens, letting the shoots trail along the Grass without taking much trouble or care of them. In the second volume of the "Transactions of the Royal Horticultural Society," there is a description, with an account of the cultivation and figure of the Gourd called Vegetable Marrow, read in December, 1816, by Mr. Sabine. It had not then been long known in this country. The most probable account of its introduction is that the first seeds were brought here in one of our East Indian ships, and came most likely from Persia, where it is known and called *Cierader*. Phillips states that the Vegetable Marrow was not seen for sale in our shops or markets before 1819. It is now, as we all know, extensively grown, and the fruit is used for culinary purposes in every stage of growth. This plant is considered as a variety of the Pumpkin. Where the climate is warm enough for them, all the varieties of Gourd are cultivated, and form important articles of food; the superabundant shoots are also used for feeding cattle. In America and the islands of the West Indies they are extensively cultivated, and some species grow to a great size. The Rev. Mr. Griffiths, in his "Natural History of Barbadoes" (1750), mentions some which, when cleared of their pith, are capable of containing 22 gallons; but he adds, however, such are very uncommon. Phillips relates that in some parts of America the jugglers or quacks extract the pulp out of the Pumpkins, and fill them with stones, with which they make a great noise and pretend to frighten away all complaints from their superstitious patients.

The Squash (*C. Mellopepo*) is another kind of Gourd, which is a great favourite with the Americans. Gourds of large size were found growing by Captain Cook in the Sandwich Islands. The inhabitants applied them to all manner of domestic purposes; and in order to fit them better for their respective uses, they had the ingenuity to give them different forms by tying bandages round them during their growth; they also had a method of scorching them with a heated instrument, so as to give them the appearance of being painted in a variety of neat and elegant forms. Specimens of these Gourds are to be seen in most museums and collections of natural history in this and other countries. The Gourd and its varieties may have sprung from one original species, and like other plants, have been greatly improved by cultivation. De Candolle, in discussing the history and origin of cultivated plants, refers all the Squashes and Pumpkins to the Old World, but not to India, because they have no name for them in Sanscrit. Some American botanists believe that the Pumpkin and its varieties are indigenous to that continent, as the Indians declare Gourds had been a common food among them long before the Europeans discovered that country; and Champlain, who, in 1604, made a voyage along the coast of what is now the State of Maine, found the inhabitants cultivating *Citrouilles* (Gourds) along with Maize. Pickering, in his "Races of Men," says that specimens of a small variety of Gourd were exhumed from an ancient cemetery in Peru, like those which are still seen in the markets of Lima. M. Naudin, an indefatigable and distinguished botanist, has, during many years, observed and experimented upon all the known forms of Gourds, collected from all parts of the globe, and cultivated at the *Jardin des Plantes*. He reduces them to six species, only three of which, with their numerous varieties, are used as esculents, viz., *Cucurbita maxima*, the large yellow Gourd; *C. Pepo*, the Pumpkin, which he considers as probably the most variable plant in the world; and *C. moschata*, the Water Melon. An interesting paper on this subject will be found in the "American Journal of Science and Art," 2nd ser., vol. xxiv., and also in Darwin's "Variation of Animals and Plants under Domestication." The only plant among our English wild flowers that belongs to the Gourd tribe is Bryony (*Bryonia dioica*), which may be seen climbing over our hedges and thickets in the summer, with its whitish flowers with green veins, and red berries in the autumn. This plant abounds with a fetid and acrid juice.—"Science Gossip."

An Electrical Plant.—According to a Belgian horticultural serial, an electrical plant has been discovered in Nicaragua. In attempting to gather a branch a shock is felt by the hand, as from an electrical machine. The plant is said to affect the compass. It is a species of *Phytolacca*, named *P. electrica*.

Children Poisoned by Eating Laburnum Seeds.—Two little lads living near Malton had a narrow escape from death the other day through eating the seeds of Laburnum. They had been out playing, and had picked the Laburnum pods, thinking they were Peas. One of them became dangerously ill, and the services of a medical man had to be procured. He administered a strong emetic, and adopted other remedial measures, fortunately with success, as the boy ultimately recovered sufficiently to be considered out of danger.

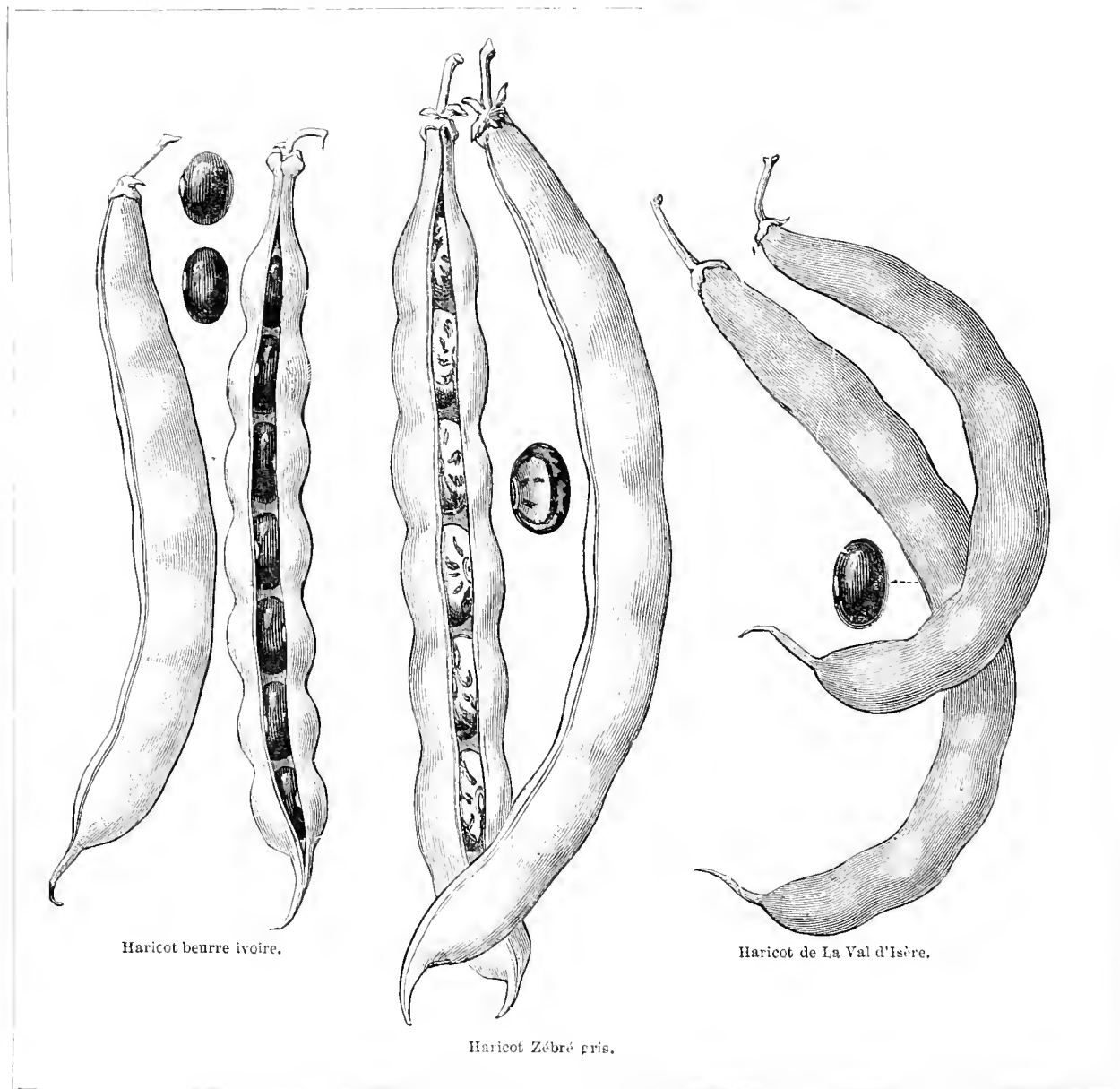
THE KITCHEN GARDEN.

NEW HARICOT BEANS.

Messrs. VILMORIN, ANDRIEU, & Co., of Paris, figure some new varieties of Haricot Beans in their catalogue, which seem to be worthy of introduction. Among them is the Haricot beurre ivoire, distinguished by ivory-white pods, excellent as a vegetable; the Haricot Zébré gris, which is described as a remarkably vigorous variety, thriving in any soil, and affording quan-

BRICK EDGINGS BEST IN KITCHEN GARDENS.

OUR principal walk through the kitchen garden here is edged with common white brick. Mr. Baines has advocated the use of bricks for this purpose in your columns several times, but still it does not appear to be sufficiently known what a neat edging they make for kitchen garden walks. They have been employed here in that way for a number of years, and since I have had charge of the garden I have re-made and drained the walks and re-laid the edges. I have used ornamental edging bricks for the same purpose, but I must say that I like plain bricks better, and if well and carefully laid they



tities of delicious pods, which are tender and good at any age; the Haricot de la Val d'Isère, named after the place in which it is much cultivated, is also strongly recommended. These varieties are described in the supplement to the catalogues of the Messrs. Vilmorin.

will not get out of line for a number of years. I lay them on their sides at an angle of 55°. Mr. Baines, I noticed in one place, recommended the end to be put in the ground; but if used in that way, just double the quantity of bricks would be needed. The Stevens brick, figured in THE GARDEN some time back, I saw in use several years ago at Holkam. It makes a neat edging, but the plain brick costs less and is equally effective. My objection to Box edgings (though nothing looks better when well kept) is that to keep them in order they must be clipped at the busiest time of the whole year (that is, where flower gardening is carried out extensively), viz., the last week in May or first week in June. Box, too, prevents the use of salt for keeping down weeds, a plan which I find much tho

Henderson's Pine-apple Beet.—This is in every respect an excellent variety; but the very best Beet may be spoiled if boiled, for if injured in any way in lifting or in cleaning, the colour boils out of it. The best plan is to cook it in a slow oven.—J. GROOM, *Henham*.

cheapest and quickest for keeping walks clean, if applied at the proper time, and not too much of it used at any one application. Where our walks were not wide enough for a horse and cart to pass along them, I have made them so, an operation which saves an immense amount of wheelbarrow work and economises both time and labour. In some large gardens the manure has to be wheeled all over the garden from the outside, the doors and walks being too narrow to admit a horse and cart. Our walks being well drained and always dry withstand carting with impunity. On the side of our principal walk is a line of cordon Apples planted five years ago, and which have done well. The crops have not been heavy at present, but the fruit individually has been very fine, especially Nelson's Glory, a pale yellow Apple, excellent for kitchen use, and a free bearer. On the other side of the walk is a fine row of pyramidal Pears planted alternately with standard Roses. Many of the later Pears, with the exception of Josephine de Malines and Winter Nelis, after being tried several seasons, were found not to ripen here; we therefore lopped off all the side branches and grafted them from top to bottom with earlier sorts, which bid fair to do well. The sorts put on are Suffolk Thorn, Comte de Lamy, Beurré Superfin, Doyenné du Comice, Beurré Bose, Forelle, Beurré Hardy, and Williams' Bon Chrétien.

Ganton Park, Norwich.

WM. ALLAN.

Winter Salads.—We have this year grown the Witloof for salad purposes; also Endive, but neither of them is eaten generally in consequence of their bitter taste. Some will say, blanch them and then they will be relished; but this has been done with the same results. Nothing is so much appreciated as Lettuces, of which we have an abundance of the Brown-seeded Hardy Cos. I have in one of my cool houses some hundreds packed so closely together that they blanch one another. We use Chives, a little Tarragon, Radishes, Mustard, Cress, and Chervil, and, to please the eye, a few blooms of Tropæolum are put on the top of the bowl.—R. GILBERT, *Burghley*.

Potatoes and Cocoa-nut Fibre.—Cocoa-nut fibre would doubtless prove a good addition to heavy soils intended for Potato culture just as it proves most useful in the cultivation of Pansies and similar plants. Its value consists in its fibrous nature, especially in the case of clayey loams destitute of that character. A frequent use of the quantity mentioned by "G. S. M." (see p. 40) would eventually do much to correct the close, binding nature of heavy soils. Recently much stress has been laid upon spent Hops as presenting a valuable Potato manure, but, on the other hand, it has been shown that Hops are comparatively valueless as a manure; and when it is remembered that they have been subjected to such a scalding that nothing but the mere cuticle of the bracts is left, it is scarcely reasonable to look for much that is nutritious in spent Hops. Cocoa-nut fibre, on the contrary, is the raw material; and, although tough and somewhat inconvertible at first, it eventually gets absorbed by the soil, and thus becomes a useful manure. Its capacity to supply fibre, however, is its chief recommendation, and in assisting to keep stiff soils open and porous it does useful work.—D.

—"G. S. M." (p. 10) asks if it would be a good plan to cover Potato sets with Cocoa-nut fibre. With my experience of Cocoa-nut fibre I should say it would be a very bad plan, unless the fibre was completely rotted. Fresh fibre should only be used as a mulching, for which it is most valuable; if buried in ordinary garden soil it is apt to produce a white, dry fungus, which I believe to be most injurious to plants.—H. N. ELLACOMBE, *Bitton Vicarage*.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Veitch's Autumn Giant Cauliflower.—I have lately been cutting heads of this Cauliflower measuring 9 in. across, quite compact, and as white as snow. I had a quantity of it planted rather late in June, but having had the advantage of irrigating the plants during the warm, dry months of July and August, they grew to a large size. As soon as there was danger from severe frosts, the plants went were raised and laid in close together, later being placed so as to cover them when wanted, but up till this date the weather has been so mild and wet that the covering has been but little used.—WILLIAM TILLEY, *Wetlock*.

Celery as a "Nerve Tonic."—"The cultivation of Celery is now strongly recommended, not only as a source of profit but as a benefit to the community, inasmuch as the habitual daily use of this vegetable is more beneficial to man as a nerve tonic than most persons are aware of. Those especially who are engaged in labour weakening to the nerves should use Celery daily during its season." [Paragraphs like the above have been going the round of the press for many weeks past, though there is probably no evidence that Celery is more valuable in the above respect than other vegetables.]

Market Carrots and Parsnips.—Hundreds of tons of Carrots and Parsnips come to Covent Garden market every week during the winter. The average cost of preparing these crops for market is about 8s. per twenty dozen bunches, viz.:—Digging up roots, 2s. 6d.; washing same, 1s. 8d.; bunching, 3s. 4d.; cost of Willows for tying, 6d.; and to this are to be added carriage and commission.—B.

THE LIBRARY.

DOWNING'S FRUITS AND FRUIT TREES OF AMERICA.*

THERE is probably nothing in the history of fruits more interesting than the magnificent series of hardy kinds raised in America within recent times, and now grown therein. The fact that a single State of the American Union contains more ground devoted to orchards than the whole of the United Kingdom, is good evidence of the enormous development of fruit culture in America, though perhaps it hardly comes home to us so forcibly as the large supplies of good and well-packed American Apples now in all our markets. The two large and well-filled volumes comprising this book also show to what unexampled importance fruit culture has already arrived in "Greater Britain." It is the work of the veteran Downing, the leading American pomologist. It is a noble book, and contains a mass of precious information about all the known fruits cultivated in the United States, and therefore is of great value to the horticulturist. In addition to the descriptions of the numerous fruits cultivated, their synonyms, indexes, and supplements, bringing the work down to recent times, there are many excellent chapters on all that concerns the culture, management, insect enemies, &c., of each fruit. We subjoin a chapter on—

Transplanting.

As nearly all fruit trees are raised first in nurseries, and then removed to their final position in the orchard or fruit garden, as upon the manner of this removal depends not only their slow or rapid growth, their feebleness or vigour afterwards, and in many cases even their life, it is evident that it is in the highest degree important to understand and practise well this transplanting. The season best adapted for transplanting fruit trees is a matter open to much difference of opinion among horticulturists—a difference founded mainly on experience, but without taking into account variation of climate and soil, two very important circumstances in all operations of this kind. All physiologists, however, agree that the best season for transplanting deciduous trees is in autumn, directly after the fall of the leaf; the tree is then in a completely dormant state. Transplanted at this early season, whatever wounds may have been made in the roots commence healing at once, as a deposit directly takes place of granulous matter from the wound, and when the spring arrives, the tree is already somewhat established, and ready to commence its growth. Early autumn planting is for this reason greatly to be preferred in all mild climates and dry soils, and even for very hardy trees, as the Apple, in colder latitudes; as the fixed position in the ground, which trees planted then get by the autumnal and early spring rains, gives them an advantage at the next season of growth over newly-moved trees. On the other hand, in northern portions of the Union, where the winters commence early and are severe, spring planting is greatly preferred. There autumn and winter are not mild enough to allow this gradual process of healing and establishing the roots to go on; for when the ground is frozen to the depth of the roots of a tree, all that slow growth and connection of nutriment by the roots is necessarily at an end. And the more tender sorts of fruit trees, the Peach and Apricot, which are less hardy when newly planted than when their roots are entire and well fixed in the soil, are liable to injury in their branches by the cold. The proper time, in such a climate, is as early as the ground is in a fit condition in the spring. Early in autumn and in spring, before the buds expand, may, as a general rule, be considered the best seasons for transplanting. It is true that there are instances of excellent success in planting at all seasons, except midsummer; and there are many who, from having been once or twice successful in transplanting when trees were nearly in leaf, avow that to be the best season, not taking into account that their success was probably entirely owing to a fortunately damp state of the atmosphere at the time, and abundant rains after the experiment was performed. In the Middle States we are frequently liable to a dry period in early summer, directly following the season of removal, and if transplanting be deferred to a late period in spring, many of the trees will perish from drought before their roots become established in the soil. Spring planting should therefore always be performed as soon as possible, that the roots may have the great benefit of the early and abundant rains of that season, and get well started before the heat of summer commences. For the neighbourhood of New York, therefore, the best periods are from the fall of the leaf to the middle of November in autumn, and from the

* "Fruits and Fruit Trees of America." By C. Downing. New York: J. Wiley & Sons, 15, Astor Place. Two Vols.

close of winter to the middle of April in spring; though commonly the seasons of removal are frequently extended a month beyond these limits. Taking up the trees is an important part of the operation. A transplanter should never forget that it is by the delicate and tender points or extremities of the roots that trees take up their food, and that the chance of complete success is lessened by every one of these points that is bruised or destroyed. If we could remove these trees with every fibre entire, as we do a plant in a pot, they would scarcely show any sign of their change of position. In most cases, especially in that of trees taken from nurseries, this is, by the operation of removal, nearly impossible. But although we may not hope to get every root entire, we may, with proper care, preserve by far the larger portion of them, and more particularly the small and delicate fibres. After being taken up, they should be planted directly; or, if this cannot be done, they should be kept from drying by a covering of mats, and, when sent to a distance, by being packed in damp Moss. We should notice an important exception to this in the case of trees packed for shipping across the Atlantic. In this case they should be packed only in dry Moss, the moisture of the sea being sufficient to keep the roots in good condition, while if packed in damp Moss they will be injured by rotting or excessive growth.

Preparing the Places.

Here often lies a fatal stumbling-block. An English gardener, when he is about to plant fruit trees, talks about preparing his borders; an American says he will dig his holes; and we cannot give a more forcible illustration of the ideas of two persons as to the wants of a fruit tree, or a better notion of the comparative provision made to supply these wants than by contrasting the two phrases themselves. The one looks upon a tree as a living being, whose life is to be rendered long, vigorous, and fruitful by a good supply of food, and a soil mellow and easily penetrated by the smallest fibre; the other considers it very much in the light of a truncheon or a post which he thrusts into the smallest possible hole, and supplies with the least portion of manure, trusting to what he seems to believe the inextinguishable powers of Nature to make roots and branches under any circumstances. It is true that the terms differ somewhat from the nature of the culture and the greater preparation necessary in planting fruit trees in England, but this is not by any means sufficient to justify the different modes of performing the same operation there and here. In truth, in this country, where the sun and climate are so favourable—where pruning and training are comparatively so little necessary, the great requisite to success in the ordinary culture of fruit trees is the proper preparation of the soil before a tree is planted. Whether a transplanted tree shall struggle several years to recover, or grow moderately after a short time, or at once to start into a very luxuriant and vigorous growth, depends entirely upon the amount of care and labour the planter is willing to bestow on the soil for his trees. We have seen several instances where, side by side, one man planted his trees in large spaces of deeply-moved and rich soil, and another in small holes in the common mode, which uniformly showed the trees of the first larger after five years than those of the last after twelve. No fruit tree should be planted in a hole of less size than 3 ft. square, and 1½ ft. to 2 ft. deep. To this size and depth the soil should be removed and well pulverized, and it should, if necessary, be properly enriched by the application of well-rotted manure, which must be thoroughly mixed with the whole mass of prepared soil by repeated turnings with the spade. This preparation will answer, but the most skilful cultivators among us make their spaces 4 ft. or 5 ft. in diameter, or three times the size of the roots, and it is incredible how much the luxuriance and vigour of growth, even in a poor soil, is promoted by this. No after-mending of the soil, or top-dressings applied to the surface, can, in a climate of dry summers like ours, equal the effects of this early and deep loosening and enriching the soil. Its effects on the growth and health of the tree are permanent, and the little expense and care necessary in this preparation is a source of early and constant pleasure to the planter. This preparation may be made just before the tree is planted, but in heavy soils it is much better to do it several months previously; and no shallow ploughing can obviate the necessity and advantages of the practice where healthy, vigorous orchards or fruit gardens are desired. The whole art of transplanting after this consists in placing the roots as they were before, or in the most favourable position for growth. Begin by filling the hole with prepared soil, within as many inches of the top as will allow the tree to stand exactly as deep as it previously stood. With the spade, shape the soil for the roots in the form of a little hillock on which to place the roots, and not, as is commonly done in the form of a hollow; the roots will then extend in their natural position, not being forced to turn up at the ends. Next examine the roots and cut off all wounded parts, paring the wound smooth, cutting from the under side. Hold the tree upright

on its little mound in the hole of prepared soil; extend the roots and cover them carefully with the remaining pulverized soil, as much of the success of transplanting depends on bringing the soil in contact with every fibre, so as to leave no hollows to cause the decay of the roots; not only must this be secured by patiently filling in all cavities among the roots, but when the trees are not quite small, it is customary to pour in a pail of water when the roots are nearly all covered with soil. This carries the liquid mould to every hidden part. After the water has settled away, fill up the hole, and avoid the common practice of shaking it up and down by the stem. In windy situations it will be necessary to place a stake by the side of each tree, to hold it upright, until it shall have taken firm root in the soil, but it is not needful in ordinary cases.

Avoid deep planting. More than half the losses in orchard-planting in America arise from this cause, and the equally common one of crowding the earth too tightly about the roots. No tree should be placed deeper than it formerly grew, as its roots are stifled from the want of air, or starved by the poverty of the soil at the depth where they are placed. It is much the better and more natural process, in fact, to plant the tree so that it shall, when the whole is complete, appear just as deep as before, but standing on a little mound 2 in. or 3 in. higher than the level of the ground about. This, when the mound settles, will leave it nearly on the level with the previous surface.

Mulching.

Mulching is an excellent practice with transplanted trees, and more especially for those which are removed late in the spring. Mulching is nothing more than covering the ground about the stems with coarse straw or litter from the barn-yard, which, by preventing evaporation, keeps the soil from becoming dry, and maintains it in that moist and equable condition of temperature most favourable to the growth of young roots. Very many trees, in a dry season, fail at midsummer, after having made a fine start, from the parched and variable condition of the earth about the roots. Watering frequently fails to save such trees, but mulching when they are planted will entirely obviate the necessity of watering in dry seasons, and promote growth under any circumstances. Indeed, watering upon the surface, as commonly performed, is a most injurious practice, as the roots, stimulated at one period of the day by water, are only rendered more susceptible to the action of the hot sun at another, and the surface of the ground becomes so hard by repeated watering, that the beneficial access of the air is almost cut off. If trees be well watered in the holes while transplanting is going on, they will rarely need it again, and we may say never, if well mulched directly after planting. The best manure to be used in preparing the soil for transplanting trees is a compost formed of two-thirds muck or black peat earth, reduced by fermenting it several months in a heap with one-third fresh barn-yard manure. Almost every farm will supply this, and it is more permanent in its effects, and less drying in its nature, than the common manure of the stable. An admirable manure recently applied with great success is charcoal—the small broken bits and refuse of the charcoal pits—mixed intimately with the soil. Air-slaked lime is an excellent manure for fruit trees in soils that are not naturally calcareous. Two or three handfuls may be mixed with the soil when preparing each space for planting, and a top-dressing may be applied with advantage occasionally afterwards to increase their productive-ness. But wherever large orchards or fruit gardens are to be planted, the muck compost heap should be made ready beforehand, as it is the cheapest, most valuable, and durable of all manures for fruit trees. Pruning the heads of transplanted trees at the season of removal we think generally an injurious practice. It is certainly needless and hurtful in the case of small trees, or those of such a size as will allow the roots to be taken up nearly entire; for as the action of the branches and the roots is precisely reciprocal, and as new roots are rapidly formed just in proportion to the healthy action of the leaves, it follows that by needlessly cutting off the branches we lessen the vital action of the whole tree. At the same time, where trees are transplanted of so large a size that some of the roots are lost in removing them, it is necessary to cut back or shorten a few of the branches—as many as will restore the balance of the system—otherwise the perspiration of the leaves may be so great as to exhaust the supply of sap faster than the roots can collect it. A little judgment only is necessary to see at a glance how much of the top must be pruned away before planting the tree to equalize the loss between the branches and the roots.

Preparation for Transplanting.

When it is necessary to transplant fruit trees of large size, the best practice is to prepare them previously by digging a trench round the whole mass of roots, undermining them, and cutting off all roots projecting beyond this line. The trench should be dug at such a distance

from the tree as will include all the large and sufficient ball of roots, and it should be done early in the spring when it is desirable to remove the tree the next year. After all the roots that extend to this circular trench are cut off, the earth is replaced, and by the season following an abundance of small fibres is sent out by the amputated roots, which, when the whole is removed, will insure the success and speedy growth of the tree. This is more completely the case when the tree is prepared two years before transplanting. A variation of this mode, which has been found quite as successful and less laborious, consists in leaving the trench open and covering it with boards only, or boards with a top layer of turf. The tree then is somewhat checked in its growth, it throws out an abundance of small fibres into the ball of earth containing the roots, and is the next season transplanted with great ease and safety. The proper size for transplanting varies somewhat with the sort of tree and the kind of culture intended. It is, however, a maxim equally well settled both among theorists and the best practical men that health, immediate vigour, and duration are all greatly promoted by transplanting fruit trees of small size—from 3 to 7 ft. We are fully aware with what impatience the tyro or a person who knows little of the culture of trees looks upon trees of this size—one who is eager to plant an orchard and stock a garden with large trees thinking to gather a crop the next year. The latter may indeed be done, but the transplanting so affects the tree that its first scanty crop is followed by a long season of rest and feeble growth, while the plantation of young trees is making wood rapidly, and soon comes into a healthy and long-continued state of productiveness, often long indeed before the large trees have fairly arrived at that condition. The small tree, transplanted with its system of roots and branches entire, suffers little or no check; the older and larger tree, losing part of its roots, requires several years to resume its former vigour. The constitution of the small tree is healthy and unimpaired; that of the large is frequently much enfeebled. A stout and vigorous habit—what the nurserymen call a good stocky plant—is the true criterion of merit in selecting fruit trees for transplanting.

Selecting the Trees, Heeling-in, and Thawing when Frozen.

Trees intended for orchards, being often more exposed than those in gardens, should be somewhat larger—not less than 6 ft. or more than 8 ft. is the best size. For gardens, all experienced cultivators agree that a smaller size is preferable; we prefer plants two years old from the graft. Most gardeners abroad, when they select trees with more than usual care, take what are called maiden plants—those one year old from the graft—and there can be no doubt that, taking into account health, duration, and the ease with which such a tree can be made to grow into any form, this is truly the preferable size for removal into a fruit garden. But we are an impatient people, and it is not till after another century of trial and experience in the culture of fruit trees that cultivators generally in this country will become aware of the truth of this fact. The facility with which the different fruit trees may be transplanted differs considerably. Plums are generally removed with most success, and after them nearly in the order as follows:—Quinces, Apples, Pears, Peaches, Nectarines, Apricots, and Cherries; the latter succeeding with some difficulty when of large size.

Laying in by the heels is a practice adopted as a temporary kind of planting when a larger quantity of trees is at hand than can be set out immediately. A trench is opened and the roots are laid in and covered with soil, the tops being previously placed in a sloping position, inclining to within a few feet of the surface. In this way they are kept fresh and in good order until it is convenient to plant them finally. In northern districts, where the autumn is often too severe for planting, and the spring is frequently too late to receive trees in time from nurseries farther south, it is a common and successful mode to procure trees in autumn and lay them in by the heels until spring, covering over the tops of the more tender sorts, if necessary, with coarse litter. We have often known trees entirely destroyed by want of a little extra care in heading them in. Select first a dry knoll, or position where no water can stand, and, if possible, sheltered from the southern sun. After first digging a trench 1 ft. or more deep, lay the trees down at an angle of about 45°, their tops to the south; then make the soil mellow and fine, and thoroughly intermingle it with the roots, filling all interstices, and covering them at least 18 in. deep.

Trees are sometimes received in a frozen condition. They should then be placed at once, without unpacking, in a dark cellar and left until gradually thawed out, or they may be at once, if the earth will allow, buried, tops and roots entire, beneath the ground, and there left for a few days, or until a moist, cloudy day occurs for opening and exposing them to the light and air. This latter course is also a good one for trees that are received in a dry or

shrivelled state. In planting an orchard always avoid placing the trees in the same spot, or near, where an old tree stood before. Experience has taught us that the growth of a young tree in such a position is weak and feeble, the nourishment suitable to that kind of tree having already been exhausted by a previous growth, and the soil being half filled with old and decayed roots, which are detrimental to the health of the young tree.

HANDY GARDEN TOOLS.

By means of a little ingenuity as regards the construction of garden tools much labour may often be saved. Fig. 1 shows a contrivance which will be found useful in the transplantation of vegetables. It consists of two pieces of wood 1 in. thick, and of the same size; to one of them is fastened a pair of handles, and in the other a number of holes is bored 3 in. apart, which are supplied with movable pegs, in order that holes may be made in the ground at 3 in., 6 in., or 9 in.

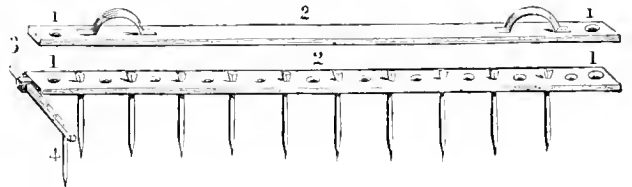


Fig. 1.

asunder, as may be required. When the pegs are in their proper positions, the piece with the handles is placed on the top, and secured by means of small iron bolts, on which nuts are screwed (1). When a border is required to be planted, say with Cabbage plants, one person must go on each side of the border, and if the ground be in workable condition, they will be able in a few minutes to pierce the ground with rows of holes at equal distances apart; the distances between the rows may be easily regulated by means of the movable peg (4), which is shorter than the rest, being placed in the horizontal slip (3), which is filled with holes also at the required distances asunder. This implement may, of course, be made of any size. Fig. 2 represents a small iron tool for rapidly making holes for

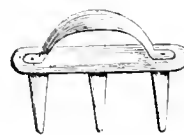


Fig. 2.



Fig. 3.

large seeds, such as Peas and Beans, at equal distances apart, and of the same depth, conditions on which they usually prove more satisfactory than when sown in the ordinary way. Fig. 3 represents a tube of galvanised iron, zinc, or tin, by which holes may be made in shallow or poor soils, and filled with good soil, in which to grow Carrots, Parsnips, Beetroot, or other vegetables, either for exhibition or general purposes. If screwed into the ground the soil will, of course, work up the centre of the tube, which, when full, may easily be emptied by being turned upside down. S.

Allotment Gardens for the Poor.—Respecting these Mr. J. Wright writes to the "Times" as follows from Springwell, Saffron Walden:—"In a parish which formed part of the estate of the late Lord Maynard in Essex, his lordship required his tenants to allow

every cottager to occupy from 10 to 40 poles of land near his dwelling, and at the same rent per acre as that paid by the farmers; and many years back, during his lordship's life, I have heard blessings invoked upon him for having thus increased the food of the poor; and as the same system is continued by the trustees of the estate, I should be glad to see the labourers, by the work of their own hands, raise some lasting memorial to the memory of so benevolent a nobleman. In the parish of Willesden, in which I have resided for the last thirty-five years, I established allotment gardens, of which there are now about sixty, and in the summer months any one may see in Pound Lane, in a field granted by Mr. Froust, of Neasden, the working of the system, and the highly-prized productions of the tenants. These allotments tend to encourage industry and skilled labour to such an extent, that every able-bodied man can find employment at considerably increased wages; the Union houses are no longer needed, and ought not to exist, except as asylums for the aged and hospitals for the afflicted."

PLANT FERTILIZATION.

LOBELIA SYPHILITICA.

The way in which plants are fertilized is at present, more than ever before, a subject of general interest, and it is one from which every admirer of flowers, whether a botanist or not, may derive instruction. Many flowers may or do fertilize themselves. Many depend upon the wind to carry the pollen from the male to the female. Others are wholly dependent, it would seem, upon insects for their fertilization, and among this last class we propose to speak of *Lobelias*, selecting *L. syphilitica* for illustration. This is the blue or purple Cardinal Flower that appears to prefer moist, half-shady places, and may be found in the fresh water marshes bordering rivers and streamlets. The petal-like filaments of the stamens, though separate below, are coherent above, and with their anthers form a slender tube, the anthers looking inward. The pistil in the bud is quite short, lengthening as the bud unfolds, until finally the stigma has made its way through this tube for the distance, it may be, of $\frac{1}{4}$ in. or more, much the same as if one should push his finger through the finger of a glove with the end cut off, the end of the finger representing the stigma, the rest of the finger the style, and the shortened glove-finger the tube of the united filaments and anthers. Now, the anthers mature and burst at the same time, or a little before the stigma of the elongating style reaches them, filling the little round cavity (the sides of which are the united anthers, and the bottom of which is the closely-fitting stigma) with pollen. The elevation of the stigma by the continued growth of the style presses upon this pollen, causing it to ooze out at the top of the tube, the same as water would from the top of a syringe if the piston-rod were very gently pressed. If flour could be substituted in the syringe for water, the analogy would be closer. It would appear, therefore, that inasmuch as the pollen of every flower rests upon the stigma for a considerable time (from twelve to forty-eight hours), the ovules are necessarily fertilized by the pollen of the anthers of the same flower. Indeed, if our observations were to cease at this stage, we could arrive at no other conclusion.

After watching the flowers of *Lobelia syphilitica* as long as our patience could be induced to hold out every day for a week or so, and not seeing a single insect upon any one of 100 flowers before us, we should ourselves have concluded that they must be self-fertilizing, were it not for the fact that the stigmas, so far as we could judge, were never ripened or fit for the reception of the pollen until they had passed through and beyond the coherent anthers. In a neighbouring field and along the banks of a stream we happened one day to come upon a plantation of this *Lobelia*, consisting of scores of plants in every stage of bloom, and here we were not obliged to wait long for a full understanding of what we had wasted many hours over in our own garden. Let us now note that the corolla consists of two lips, the posterior (upper) having two erect lobes, the lower recurved and more spreading. As soon as the pollen bursts the cells of the anthers, the pistil begins to recurve toward the lower lip, somewhat as a fish-hook is curved, though less, so that the top of the stamen tube almost rests upon the lower lobes of the corolla. Here a bee or other insect would naturally light in order to procure the honey secretions within. A big humble-bee was the first visitor, and indeed the only one whose behaviour we need record. Forcing his head and thorax beneath the crooked end of the staminate tube or pistil, if the latter had yet sufficiently protruded, and between it and the lower lip of the corolla, the tip of the tube or stigma, as may be, pressing upon the middle of the thorax, would part the hairs to the right and left the same as the hair of one's head is parted with a comb. When the bee selected flowers in that stage in which the pollen was being forced out of the tube, there was always a quantity on the outside cohering to that within. This, of course, would

necessarily be deposited upon the thorax of the bee as he entered the flower, and, from its different colour, marked the "part" so distinctly that it could be seen 6 ft. away. When the bee, withdrawing from this flower, visited another, it was as likely as not to happen that all of the pollen had been forced through and out, and that the pistil, maturing afterward and having made its way through the tube, was ready to receive the pollen which was to creep down the style and to perform its part in the creation of embryos in the ovules of the ovary. This pollen was abundantly supplied to the ripened stigma by the "part" of the thorax of the humble-bee. The stigma, before maturity and while—from the growth of the style—it is slowly making its way through the tube of stamens, is surrounded with a fringe of short hairs. After the stigma has made its way through, it begins to swell and ripen. Two convex lobes are developed, and the fringe of hairs is now covered by these lobes, and may be seen underneath. Had the stigma matured while still within the tube, its increasing size would have split the anther tube, and thus no cross-fertilization could occur, since the stigmas, ripened within the tube, could alone come in contact with pollen of the same flower. The fringe of short hairs, it may be supposed, acts to rid the anthers of every grain of pollen, for, though we divided lengthwise in two perhaps twenty tubes after the stigmas had passed through them, not a grain of pollen was visible. In several instances the stigma was caught or held in the anther tube. The style, continuing to grow, thrust itself between and outside of the filaments, where the latter was not united, in the shape of a bow. One of these which we marked did not perfect seeds, which, so far as it goes, is evidence either that the stigma did not mature when thus confined, or that the pollen is not potent upon the stigma of the same flower.—"Rural New Yorker."

Moss on Fruit Trees.—Will you kindly inform me how I can get rid of Moss on my fruit trees?—J. [Many scrape it off with a piece of hoop-iron, but neither scraping, washing, painting, nor any other method except such as would be injurious to the trees, have any permanent value. The existence of Moss on fruit trees is caused by the stagnation of water round the roots, too deep planting, poverty of the soil, &c.; this is removable in the case of young trees, whose growth may be improved under more liberal treatment; but generally irremovable in old ones, on which the Moss does little harm beyond, perhaps, that of harbouring insects. In some cases, however, a great improvement may be made by carefully removing the surface soil down to the roots, and replacing it with richer materials, covering the roots just enough to prevent their being injured.—S.]

Keeping Potatoes for Two Years.—This is no novelty. For several years it has been done by Mr. Robert Fenn by simply keeping them in paper bags in a dry, cool place, and looking them over occasionally to prevent any of the shoots from pushing. With many kinds, the eyes of which are few, it is not often that more than one or two shoots push at once, and therefore if these be kept in check little exhaustion is experienced. In the case of sorts covered with eyes that all start at once, the exhaustion is rapid, and it is impossible long to keep growth in check. A close observation of the habits of Potato tubers in the spring reveals the fact that they are capable of accomplishing but little growth unassisted. Given a dry shelf and plenty of light and air, and it will be found that the shoots pushed by the tuber seldom exceed from 1 in. to 2 in. in length, and at that point they will remain until the tuber finally decays. It is only when the young rootlets come into contact with moisture or soil that farther growth is the result. The blanched growth obtained in a dark, confined place, affords no guide to the matter, as there the conditions are unnatural. This fact shows plainly that the after growth of the Potato depends much less upon the strength or size of the tuber than is usually believed. Given a healthy shoot, even from a small tuber, the rest must depend upon the quality of the soil.—A. D.

Midland County Fruits.—Will you kindly favour me with the names of a few of the best kinds of fruits for planting in cottage gardens in the Midland Counties?—A. B. [The following are all useful kinds which invariably bear good crops about Nottingham and Derby, viz.:—*Kitchen Apples*—Lord Suffield, Blenheim Orange, Northern Greening, Normanton Wonder, Hawthornden, and Keswick Codlin. *Dessert Apples*—Court-pendu Plat, Pike's Pearmain, Pearson's Plate, New Besspool, Lemon Pippin, and Cackle Pippin. *Pears*—Beurré de Capiaumont, Beurré Diel, Marie Louise, Winter Nelis, Easter Beurré, and Glou Morcean. *Plums*—Orleans, Victoria, Goliath, Jefferson, Green Gage, and Violet Hative. *Gooseberries*—Warrington, Crow Bob, Green Gage, Champagne, Woodward's Whitesmith, and Smooth Yellow. *Currants*—Black Naples, White Dutch, and Red Grape. *Strauberies*—Keen's Seedling, Sir C. Napier, Eclipse, President, Elton Pine, and Wilmot's Superb.—S.]

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 17.

THIS meeting was an attractive one, the groups of Orchids and other decorative plants exhibited being of a superior character. New fruits were represented by a Pine-apple from Mr. Miles, which will be more fully described hereafter, and as this particular variety possesses the merit of being a good keeper, we hope Mr. Miles will give us particulars as to its general character and usefulness. A cluster of Grapes sent by Mr. Fowler, of Harewood, under the name of Charlesworth Tokay, was in excellent condition, and interesting as being cut from the original Vine of that name at Harewood, which during the past season has ripened 300 bunches. Some Mushrooms shown by Mr. Hepper were perfect examples of good culture. New plants shown on this occasion were limited to Orchids, and consisted of *Schlimmia trifida*, *Lælia Dayana*, and the singular *Dendrobium Lindleyanum*. These all came from Sir Trevor Lawrence's collection; Mr. B. S. Williams had, however, a blooming plant of the *Lælia Dayana*, which is a richly coloured addition to the genus. Messrs. Charles Lee & Son sent a large group of hardy variegated and other evergreen shrubs.

First-class Certificates.—These were awarded to the following new and rare plants:—

Lælia Dayana (Spysers).—This is a charming addition to dwarf winter-blooming *Lælias*. Its pseudo-bulbs are slender, fusiform, from 2 in. to 3 in. in length, each bearing an oblong leaf, as long or longer than the membranous-sheathed bulb. Flowers solitary, at first sight, reminding one of those of a richly coloured variety of *L. præstans*. They are of a bright carmine colour, the involute base of the lip being pure lilac in colour, and the tip of the lip a rich purple. There are five principal and four secondary purple plates on the lip, and these as seen up the white throat are very beautiful. It is a plant, well worth culture.

Pine-apple Lord Carington (Miles).—A small but symmetrical fruit, having a white exudation on brownish-orange pips. The fruit shown, which was delicious in flavour, had been cut from the plant seven weeks ago, so that, apart from the high flavour, its keeping qualities are sure to render it worthy of special attention.

A second-class certificate was awarded to *Dendrobium Lindleyanum* (Spysers). This has the habit of a broad-bulbed specimen of *D. nodatum*, with flowers similar to those of a pale variety of *D. crassinode* or *D. tortile*. It has the singular habit of bearing its flowers at the slender apices of its knotted bulb.

A botanical commendation was awarded to *Schlimmia trifida*, a singular Orchid which came from Sir Trevor Lawrence's collection. This is in habit like a *Gongora* or slender-bulbed *Stanhopea*, and bears a five-flowered spike 9 in. or 10 in. in length and naturally pendulous. The white flowers are of a wax-like consistence, glisten like ivory, the only colour being on the curious knobbed, dagger-like lip, which is spotted with orange, the interior of the pouch having a few lilac dots. The two narrow-curved petals and the upper sepal are distinct, but the lateral sepals are fused together, the result being an elegant ewer-shaped *Cypripedium*-like pouch. It is one of the most deliciously fragrant of all Orchids, and well deserves culture.

Miscellaneous Plants.—From Messrs. Veitch & Sons came an attractive group of rare Orchids and Palms of various kinds, together with a richly coloured collection of various Persian Cyclamens, some Hybrid *Amaryllises*, and some remarkably well-grown *Lily of the Valley* in pots. Among the Orchids we noted several distinct varieties of *Odontoglossum Alexandrae*, *O. Andersonianum*, bearing two good spikes of creamy-yellow brown-spotted flowers; the pure white variety of *O. Roezli*, and the curious little *O. crocidictum*. A plant of *Cologyne cristata* bore several spikes of ivory-white flowers amongst graceful, glossy foliage. A pot of the pretty lilac-tinted *Pleione humilis* was furnished with nine or ten remarkably fine flowers, and several *Cypripediums*, *Lycastes*, and *Cattleyas* of the *C. Trianae* section made up a charming group, to which a Davis medal was recommended to be awarded as much for excellent culture as for floriferous beauty of colour. In this collection was moreover the bright scarlet *Aphelandra aurantiaca* (Roezli), which well deserves culture as one of the most brilliant of stove plants. Messrs. Charles Lee & Son, of the Royal Vineyard Nursery, Hammersmith, contributed a mixed group of stove and greenhouse plants, among which were Palms, *Dracænas*, Ferns, *Crotons*, and dark-leaved *Cycads*; also a well-grown group of new and rare hardy Conifers, *Euonymuses*, *Hollies*, &c. Associated with these was also a small specimen of the Japanese Umbrella Pine (*Sciadopitys verticillata*). Mr. B. S. Williams, of Holloway, furnished a large bank of Orchids, Ferns, Palms, scarlet-berried *Solanums*, and other decorative plants, all in excellent condition, the Orchids especially being much enhanced by being tastefully arranged over an undergrowth of *Adiantum Farleyense*. Among them we noted *Saccolabium giganteum*, bearing two good spikes of flowers, *Cypripedium Davi*, producing two fine flowers, the fragrant *Cymbidium ensifolium*, *Oncidium Weltoni*, various *Lycastes*, *Odontoglossos*, and others. Mr. Ollerhead, gardener to Sir H. Peck, Wimbledon House, showed a small group of well-grown *Crotons*, *Dracænas*, *Aralias*, and a very fine specimen of the graceful and but little-known *Lycopodium Phlegmaria*; also a good plant of the rich green plumose *Todea superba*. Mr. R. Dean exhibited Lee's new Violet *Victoria regina* in good condition, also mauve Neapolitan Violets, and one or two early Primroses. From the Society's garden at Chiswick came cut specimens of hardy

winter-flowering shrubs, among which were *Lonicera fragrantissima*, a smooth-leaved evergreen shrub, bearing white fragrant flowers, and *L. Standishi*, a kind with similar flowers, but a more abundant bloomer; the shoots of this last-named sort were nearly destitute of foliage, which is rough, and slightly different in shape from that of *L. fragrantissima*. These plants are doubtless varieties of the same species, judging by the flowers, but the one is evergreen, and the other for all practical purposes deciduous. Cut sprays of *Chimonanthus grandiflorus*, loaded with sweet-scented blossoms, also came from the Society's garden.

Fruit.—Mr. Miles, gardener to Lord Carington, Wycombe Abbey, showed new Black Hamburg Grapes in good condition, and Mr. Fowler, of Harewood, exhibited a cluster of the true Muscat of Alexandria under its synonymous name of Charlesworth Tokay. Mr. J. Perkins, Thornham Hall, Suffolk, sent a small fruit of Cox's Golden Gem Melon, and a seedling kitchen Apple named Hart's Glory came from Messrs. Lott and Hart, Whitehill Nursery, Faversham. Mr. J. Hepper, The Elms, Acton, showed three boxes of Mushrooms in excellent condition, and a dish of *Josephine de Malines* came from the Society's garden at Chiswick, where it proves to be one of the latest of all Pears, and as such well deserving of notice.

OBITUARY.

WE have to record with regret the death of Mr. ALFRED SMEE, F.R.S., an event which occurred at his residence, Finsbury Circus, on Thursday, the 11th inst., at the age of fifty-eight. Mr. Smeed held the office of Surgeon to the Bank of England for many years. He took great interest in gardening, and one of his latest works was "My Garden," in which he minutely describes his garden at Carshalton. He was for many years a member of the Scientific and Fruit Committees and of the Council of the Royal Horticultural Society, and was a zealous promoter of town gardening.

NOTES AND QUESTIONS—VARIOUS.

A Winter-flowering Honeysuckle (*Lonicera fragrantissima*).—Perhaps Mr. Ingram, Belvoir, will kindly say whether his fine plants of this Honeysuckle on the terrace wall of the castle are in flower thus early or not this exceptionally mild winter; if so, this would add an additional recommendation to the Rev. Mr. Ewbank's testimony to its usefulness at this early season in the Isle of Wight. It is one of the sweetest and most useful for cutting of all the Honeysuckles.—D. T. F.

Plants in Bloom Out-of-doors in Dorset.—The following is a list of the flowers which I gathered out-of-doors on the 12th inst., viz., *Andromeda dorabunda*, *Berberis Darwini* and *Aquifolium*, *Gastonbury Thorn*, *Chimonanthus fragrans*, *Cydonia japonica*, three varieties of *Heath*, *Christmas Rose*, *Iberis sempervirens*, *Jasminum nudiflorum*, *Lonicera flexuosa*, *Laurustinus*, *Viola major*, *Violets* (Neapolitan and Czar), *Veronica speciosa* and *salicifolia*, and *Polyanthuses*, *Daisies*, *Snowdrops*, *Nemophila insignis*, and *Arabis*. A crimson *Rhododendron* is just opening its flowers.—D. UHILL, Moreton, Dorchester.

Pyracantha and Snowberries for Winter Decoration.—I agree with Mr. Williams, of Ormskirk, that the *Pyracantha* should have the second place to the *Holly*, if it should not go before it. No plant yields such a rich profusion of berries as the *Pyracantha*, and the branchlets are so slender that they may often be used for designs or letters *en masse*. This, however, sacrifices the plants, and is not to be recommended, unless where a free growth is allowed on purpose. The *Snowberry* is very striking when perfect, but it is so often marred or tarnished, and does not bear quite so well. *Cotoneasters* are hardly as a rule, sufficiently large or brilliant for indoor decoration.—F.

Violas and Drought.—Mr. Groom's experience on this subject differs from mine. The general impression that *Viola* are not suitable for dry places in dry seasons is quite correct. I have grown *V. cornuta* and others by the thousand, and was obliged to relegate the whole to a few shady nooks and corners in the mixed border. They proved total failures again and again in our back garden. *Viola cornuta alba* I now grow on a shady border for bouquet purposes, and find it most useful; it is pure white, and has a delicate odour of *Violets*.—T. S.

Derbyshire Spar.—I agree with "J. G." (see p. 36) that this is very effective in plant houses, but it is dear. Were agents to deliver it carriage free at leading towns throughout the kingdom, it is probable a large trade might be established in it, but as it is, if any one wants a ton or two of it he is mostly so victimized that the spar is not considered worth what it costs.—D.

Coloured Primroses the Earliest.—Can any one explain how it is that the brighter-coloured varieties of the common Primrose—notably pink or crimson strains—flower earlier than the common type? Has colour any correlation to precocity? In all structural and botanical characteristics they are identical; in fact, it seems pretty certain that the earliest purple Primrose is merely a sport from the common kind, and yet it is mostly a month, six weeks, and sometimes two months earlier. Why?—D. T. FISK.

Preserving Stakes.—Let "W. S." (see p. 34) have his stakes thoroughly dry, and then paint them over with carbolic acid. Another good way of preserving them is to dip their points in pitch, which excludes air, and therefore obviates decay.—CHARLES CHAINOR, *The Hollies, Exham*.

Crocuses Eaten by Rats and Mice.—Catch and kill them is the only sure remedy. Set traps on the scratched places, and their numbers will soon be thinned. The bulbs may also be wetted and rolled in red lead or sprinkled lightly with paraffin oil before being planted. But after all there is no safety except in the death of the rodents.—T.

— In order to kill mice which attacked my *Crocus* borders I set traps baited with cheese, but finding that plan fail I strewn sifted ashes and soot over the bulbs, and since I that not one *Crocus* has been touched.—J. J.

— In reply to "W. T." I would say, plant the *Crocuses* 6 in. deep, and the mice will not scratch them up and eat them. They will bloom somewhat later, but that is better than no *Crocuses*.—J. G. N.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

WILD GARDENING FOR PUBLIC PARKS.

THE idea of the wild garden may be carried out with success and appropriateness in public parks, the extent and variety of the surface of these presenting great advantages. In such places there are generally large surfaces which cannot be decorated in the ordinary way, owing to the expense, even if it were desirable to decorate them in that manner, which it certainly is not. It would, for example, be most unwise to create any set design or to interfere with the perfect freedom of the surface of the ground in many parts of great parks. In wild gardening there is no need to do this. So, too, in public parks it is, or ought to be, desirable to give precedence to the nobler types of vegetation—the trees and wild gardening may be carried out beneath and around them without in the least injuring them. This cannot be said of any other form of garden embellishment. In many parks where the dismal system of digging the surface, and mutilating the roots and branchlets every winter is carried on, the wild garden offers the best way out of the difficulty. One of the best reasons for the adoption of this system in the public gardens in and near our large cities would be to bring near the people—artists, designers, and all concerned—nearly the whole flower-life of the northern and temperate world. In no other way at all can this be effectively done. All systems of mixed borders, &c., sink into miserable primness, prettiness, and artificiality in the face of what may be done by wild gardening; and all other systems compared with it are as expensive as they are unsatisfactory. With wild gardening, all that is required is some knowledge of hardy plants, and judgment in finding the most suitable positions for them. The islands, margins of water, groves, shrubberies, and turf in public parks invite the wild gardener at every turn. Here, where the shrubbery fringes the water, he sees a lovely vision of Irises to come—and proceeds to secure their coming by planting them, and in a way that they may require no further attention; there, an open growth of trees, with Grass not too trim between, invites groups of Daffodils and Snowflakes; this islet may be graced with the spikes of the common blue Lupine; that more distant one with the showy rose-coloured Loosestrife. This steep and somewhat arid bank, on which the Grass is not very fresh, will prove a pleasant home for trailing shrubs, allowed their way on the turf; one grove may be filled with coloured Primroses, if only to contrast with their less showily arranged relatives, which would, of course, also find a place; the blue early Scillas would be at home anywhere on the Grass with the Snowdrops. In this way innumerable beautiful aspects of vegetation might be enjoyed. It may be objected, that in the case of city parks some of these types would not thrive—granting that this is true, it is only a question of selection after all, and the avoidance of smoke-fearing species. The materials at our disposal are so ample that we can never use the half of them, even if obliged to reject kinds that would not thrive in polluted air.

CORDYLINÉ VIVIPARA, OR CHLOROPHYTUM STERNBERGIANUM.

WHAT does your correspondent "R." (see p. 3) mean by "perfectly hardy" with respect to this very interesting plant? I fear that such a statement will lead to disappointment. Its proper place is a room in dwelling-house. It is one of the most accommodating and enduring of plants, bearing all sorts of neglect and hard usage; therefore it is most suitable for a living-room, which is so frequently the death-place in time of even hardy plants. In Germany, Goethe's Plant, as it is commonly called, is very generally grown. From a small shelf at the top of the window it hangs its flexible shoots, weighted with tufts of young plants, down as far as the floor, forming an

excellent blind. I have seen it set around the iron or earthenware stoves, where it endures the vitiated air of the closely-shut rooms, double-windowed and gas-lit. A good way of growing it for the sake of variety is to train the long shoots of a large plant of it up stakes, and then let them hang and grow as they please; so light yet wiry are these shoots, that on opening the door or window they move about with the slightest draught. The young plants dangling at their ends are at once visible, but the slender stalks from which they depend are not seen at the first glance, and the plant both interests and surprises those unacquainted with it. The stove, in which it grows very quickly, is unsuitable for it, inasmuch as mealy bug is liable to congregate among its fleshy air roots, from which it is impossible thoroughly to dislodge it. A large plant of it here hanging from the roof had got so desperately infested, that after picking until worn out, and burning the worst tufts, I determined to try an experiment with it. I had the plant turned out of its basket, its solid mass of roots plunged into a deep bucket of water, and there it remained for more than a fortnight. By that time the bug was thoroughly killed, and the plant had no appearance of life; however, it was laid up on a shelf just as it was, and in the course of two or three weeks small, green shoots made their appearance here and there. I then cut up the lump and potted off the sprouting portions, which made as good plants as those grown in the usual way. F. J. HORE.

Wardie Lodge.

GRAPE-GROWING FOR MARKET.

WHENCE come the large quantities of beautifully coloured Grapes which may at all times be seen in the London fruiterers' shops is a question easily answered after paying a visit to some of the suburban fruit-growing establishments—that of Mr. Sweet, at Leyton, for example. Here are five or six span-roofed houses, each from 130 ft. to 140 ft. in length and 35 ft. in width, almost entirely devoted to Grape culture. As in most other places of the kind, the glass structures here are not of a pretentious character; on the contrary, they are plain, light, airy houses, sufficiently lofty to permit the necessary operations inside being conveniently carried on, yet not so high as to necessitate a useless waste of artificial heat; they are efficiently ventilated and well supplied with hot-water pipes, which are distributed in an equal manner about the house, thus obviating the necessity of making them intensely hot even during the coldest weather, and thus avoiding the evil results often experienced in Grape-growing from the attacks of red spider or thrips. The borders in which the Vines are planted are principally inside, the reason for this being that outside borders take up too much valuable space; and moreover in the case of early houses they require to be warmed by means of fermenting material of some kind, which cannot well be either obtained or afforded in such places. The rod and spur system of training is the one adopted here, and the chief aim is to get the wood thoroughly ripened previous to pruning: this end attained, success is almost a certainty. In pruning, the shoots are not cut closely into the old wood, as is often done in private establishments, but a good plump bud, which is likely to produce a good bunch of fruit, is left on each spur. Some of the Vines have two, three, or four rods each, others only one. In some cases Vines are planted on each side of the house, each row furnishing one half, but in others only one side is planted and the rods trained so as to cover the whole of the roof. This latter plan is a very good one, as it admits of fresh Vines being planted on the vacant side whenever it becomes necessary, without in any way disturbing the roots of existing ones; besides, the newly-planted Vines can be allowed to get well established before the older ones are discarded, and thus neither Vines nor crops are sacrificed. The chief kinds grown here are Black Hamburgh, Muscat of Alexandria, Black Alicante, Lady Downes, and a few canes of Gros Colman. A house filled with the two former kinds is just now breaking strongly into leaf, and will furnish ripe fruit late in May or early in June. Fruit of Alicante is still hanging in good condition, a piece of paper being fastened over the top of each bunch to preserve it from damp and dust. These Grapes now realize from 6s. to 7s. per

lb. Watering is an operation to which due attention is paid. Each house is watered four times during the season, and at each watering sufficient is given to thoroughly saturate the whole of the soil down to the drainage. The first watering is usually given immediately the Vines are pruned, the next when the leaves are expanded, a third when the fruit is fairly set, and the last when stoning has been completed. Manure water washed from the manure heap is liberally supplied even when the Vines are starting, and this in some measure accounts for the strength of the young shoots even in the sunless season. All Vines planted in this establishment are home-grown, and by this means the desired kinds are always sure to be obtained true. The young Vines in a house planted last autumn twelvemonths now look very promising, the canes being as thick as a good-sized walking-stick, and will this year be allowed to carry a moderate crop. Alicantes grafted here on stocks of Muscat of Alexandria have turned out very satisfactorily, yearly bearing large and perfect crops of fruit. Whenever a house of Vines is found to be on the decline in bearing qualities, it is speedily replaced by younger plants, half-measures, such as trying to recruit old canes, being to growers for market, simply a waste of time and money. Vines here are well treated; they are expected to bear heavy crops, and to furnish the market with fruit of the first quality; if they fail to do this, they are immediately removed. S.

NOTES OF THE WEEK.

IMPROVEMENTS IN PARIS.—Never even during the busiest time of the Empire were improvements being more actively carried out than they are in Paris at present! Many acres of the central parts of the city, covered with costly and massive houses, are being cleared away with a view to the erection of new boulevards. The activity is equally evident on both sides of the river. The new avenue facing the Opera will be one of the greatest improvements effected in Paris. Numbers of men are busy on the sites of the Great Exhibition of next year, and the public gardens are in perfect keeping, which would hardly be expected after the late war and all its disastrous consequences.

WINTER-BLOOMING WINDFLOWER.—Small tufts of the lovely blue-flowered *Anemone blanda*, growing on raised beds in deep sandy loam in Mr. Barr's seed grounds at Tooting, have been producing abundance of flowers for these two months past, and are still very attractive. Where warm, well-drained borders exist, hardy winter-flowering plants of this description can scarcely be too extensively planted.—S.

SOPHRONITIS VIOLACEA ON CORK.—This little Orchid is beautiful under any circumstances when well flowered, but when grown on large pieces of Virgin Cork, its blossoms are set off to unusually good advantage. Plants of it growing in this way in Lord Londesborough's garden at Nottiton are at present very effective, being loaded with richly-coloured, *Crocus*-like blossoms.—S.

THE LARGE-LEAVED SANIFRAGE IN JANUARY.—*Saxifraga crassifolia* is now, probably owing to the mild weather, very beautiful in the Paris gardens. A tuft of it rooted at the base of a Bamboo in the Parc Monceau is in perfect bloom—the flowers, like bunches of Peach blossoms, half-hidden among large glossy leaves.—V.

ORCHIDS IN FLOWER AT FERNIEHURST.—The following are just now in excellent condition, viz., four plants of *Cologyne cristata*, each of which bears on an average forty flower-spikes, and on each spike there are five flowers, making 200 on each plant; *Cypripedium villosum* bears thirty-two flowers, and smaller plants of it each fifteen flowers; *Phalenopsis Schilleriana* has several branched spikes 2 ft. and 2½ ft. long; and on a large plant of *Odontoglossum Halli* there are six fine spikes 3 ft. long.—E. C.

STATE OF THE STREETS AND BOULEVARDS IN PARIS.—In London now gigantic pitch-pots make parts of the town almost unbearable in preparing for worse evils to come—rotten wooden roads. In Paris at present roads of all kinds are in the most perfect condition of repair, and offer all the convenience that could be desired. The excellent Macadam roads are nearly as smooth as asphalt, and less noisy than it or wood, while they are also dry and clean. Roads with a wide space of Macadam in the centre have frequently stone pavements on each side. These pavements suit the heaviest kind of traffic, and do not require repairing so often as the Macadam centre. Bridges and other points that have to bear a very heavy traffic are also paved with stone, which is probably the best plan for such places. The narrower and more crowded streets are coated with asphalt, which

is easily kept in perfect repair, no pitch-pots being necessary, as the dry asphalt is brought to the spot in a heated state and quickly pressed into its place. As the water runs along in the channel on each side, it quickly carries away the dust, &c., swept from the centre or from the pavement.

"THE WILD FLOWERS OF AMERICA."—The first number of an important work on this subject, by Dr. G. L. Goddard, Professor in Harvard University, with coloured illustrations by Isaac Sprague, has just been issued. It contains figures of five species in four plates, and the plates are accompanied by a botanical description, together with some gossip about folk-lore and popular names. The scarcity of figures of even the commoner American plants will render this a welcome work.

CRINUM CAPENSE AS A HARDY HERBACEOUS PLANT.—In Major Trevor Clarke's interesting note on hardy *Crinums* (p. 51), he says that *C. capense* is well worthy of culture as an aquatic, and so it is; but it cannot be too well known that both the pink and white forms of this fine plant are, in various parts of the south of England, among the most valuable of border flowers, even in cold soils. They flower long and profusely in sheltered spots, and have a fine stately habit. I am acquainted with a tuft of it which has survived the hardest winters during the past twenty years. Few plants are more worthy of being isolated on turf in deep, rich soil.—V.

CHURCHYARD GARDENS IN ST. PANCRAS.—In 1875 the Vestry of St. Pancras succeeded in obtaining an Act of Parliament with reference to two open spaces, comprising together an area of about 9 acres, known as the disused burial-grounds of Old St. Pancras and St. Giles's-in-the-Fields, which gave them powers to lay these grounds out as an ornamental garden and recreation ground for the public in perpetuity. Pending other negotiations, the Vestry have determined that the acquired space shall be available for the use of the public in the ensuing spring. A sum of £3000 has been voted for laying out and planting the grounds, and of this amount from £1000 to £1500 is to be expended in trees, shrubs, and appropriate flowers. The grounds will be intersected with gravel paths, and there is to be a good supply of seats.

WHITE WINTER-FLOWERING MULE PINK.—Plants of this Pink named Marie Parc, growing in Messrs. Rollisson's nursery at Tooting, are now producing fine strong spikes of pure double white blossoms. The plants in question were put out in beds in spring, from which time they have never failed to produce quantities of flowers. The blooms now open are of course not so large or so pure in colour as those produced during summer, but had the plants been afforded the protection of a frame or hand-light, they would doubtless have been little inferior to them. For furnishing cut flowers at nearly all seasons of the year, this plant is very valuable, the flowers being almost as large and double as those of a Carnation, and they are produced in much larger quantities.—C. W. S.

WEST INDIAN MANGOES.—A small sample of these delicious fruits was received in good condition during the past week by Messrs. Webber & Co., of Covent Garden, and it is not improbable that Mangoes, together with the Mangosteen and other choice products of the tropics—which it has hitherto been deemed almost impossible to import, except in a preserved state—will be as readily obtainable as Bananas and Pine-apples. The Mango is one of the most variable of all tropical fruits, the best kinds being in India grafted on common sorts as stocks, just as are our Apples and Pears at home. We noticed two varieties in Mr. Webber's importation, a small yellow and a large green kind, and the latter was especially delicious in flavour, and as large as an Easter Beurré Pear. The skin is smooth and of a yellowish-green colour; the flavour of the soft yellow pulp (surrounding a fibrous-coated stone) is like that of a juicy Nectarine mixed with Pine-apple, and now and then there is just the faintest trace of turpentine left on the palate. At present there is no regular importation of these fruits, but judging from the sample we have just seen, there seems no reason why some method could not be devised by which they might be regularly imported.

SPRING GARDENING AT THE WESTMINSTER AQUARIUM.—The beds here are just now very effective, being tastefully filled with early-flowering plants, especially two beds round the fountains at each end of the nave. These early flowers, consisting of Hyacinths, Tulips, Primroses, Lily of the Valley, and others, are not in patches of two or three merely, but in groups, an arrangement which greatly adds to their effectiveness. It is stated that during the past twelve months, in addition to the permanent beds, Mr. Wills has planted out something like 40,000 plants. The permanent subjects, such as Tree Ferns, Palms, &c., present in many instances an unhealthy appearance. The multiplication of gas jets has increased the aridity of the atmosphere, and the abolition some time since of the daily practice of watering the floor of the building, has also had an injurious effect on the plants.—R. D.

OLD-FASHIONED TABLE BOUQUETS.

THESE used to be made up of sweet-scented flowers and fragrant leafy spray, but unfortunately they are now so much things of the past that the sight of one would be quite a relief compared with the densely-packed, Mushroom-shaped bouquets of our own time. The old posy chiefly consisted of a handful of bright flowers and fresh green leaves, while one of its principal charms was the total absence of all the so-called modern art of the bouquetiste in its arrangement. No delicate blossoms from conservatory and greenhouse were there, but in their places we had Clove Pinks, Carnations, white Lilies, Sweet Williams, scarlet Fuchsias, sprays of Honeysuckle and branches of fragrant Rosemary, Southernwood, and Sweet Brier, intermixed with Moss Rose buds and Cabbage Roses. These were arranged as they were cut, a Rose bud here, and a spray of Mignonette or Jasmine there, each flower having a fair accompaniment of its own foliage, so that colour was balanced



An Old-fashioned Table Bouquet.

and toned down by fresh greenery. In an arrangement such as this individuality of form was well brought out; and a graceful combination, such as that represented by the annexed illustration, was the result. B.

GARDENS OF THE VILLA FRANZOSINI.

THE Lago Maggiore is certainly one of the places most visited by tourists travelling in Italy, notwithstanding which its varied beauties are but little known. Those who have paid a hurried visit to the Borromean Islands consider that they have done their duty; but those who, while stopping at the Grand Hôtel Pallanza, can spare some days for the lake and visit the Villa Franzosini, will certainly not regret the delay occasioned thereby. It is strange that a contemporary, which has lately described at length the Borromean Islands, Fratelli Rovelli's nursery, and given minute descriptions of the Villa Troubetzkoy, has hardly mentioned the Villa Franzosini, which is by far the most beautiful place on the Lago Maggiore, and not only one of the most beautiful villas in Italy, but perhaps in Europe. The Isola Madre can undoubtedly boast of more exquisite views and plants of equal age, but it must succumb to the Villa Franzosini in the development, culture, and collection of its plants, and the general state of the garden.

The Villa Franzosini strikes one by its surprising vegetation. Surrounded, as it is, by hills placed at not an oppressive proximity, it is protected from all winds descending from the

Alps, which makes it the most delicious spot imaginable for a winter residence, and Violets, Camellias, Daphnes, Edwardsias, and Calycanthus succeed each other without interruption from October to April, when Azaleas, Rhododendrons, Roses, &c., come in to take their place. Maréchal Niel Roses climb the walls in profusion, and flower throughout the winter. I have seen many English ladies returning from the Villa in the months of December and January laden with beautiful Roses and Violets, picked before them in the open air, and Camellias of such size and beauty, as to surpass even horticulturists' specimens. The peculiarity of the climate of the Lago Maggiore is, that it is as favourable to vegetation in summer as in winter, for we see Camellias, Azaleas, Rhododendrons, Agaves, Oranges, Lemons, Metrosideros, Gardenias, Conifers, and many other plants thriving well here, whereas at Naples and Nice some of these are destroyed by the heat and drought of summer. The moisture produced by the vicinity of the lake diminishes the effects of the slight frosts of winter and the heat of summer, not to mention the frequent and abundant rains in summer, which impart such vigour to the plants as to enable them to resist all excesses of temperature. Mr. Linden, who has travelled a good deal, was so much struck with the marvellous vegetation of the lake, and of the immense variety of plants which thrive there, that he determined to set up a horticultural establishment at Pallanza. Unfortunately the law forbidding the entrance of plants from abroad, caused by the fear of the Phylloxera, has for the present prevented the full development of this scheme. One part of the Villa is very old, and was bought by Mr. Franzosini from Prince Poniatowsky, the other half was planted by the present proprietor, with trees almost all sown by himself, about twenty years ago, and their progress has been such, that the difference of age of the two growths is scarcely perceptible. There are about 2000 Camellia trees, the largest of which is 24 ft. in height, and 65 ft. in circumference, not having been planted more than twenty-one years, and there are many others of the same size. When Roezl visited this Villa some years ago, he said that he had not seen Camellias of such a size, even in Japan. There are numbers of Magnolias, amongst which are some glorious specimens, the largest being 48 ft. in height, and 114 ft. in circumference, the trunk being 9 ft. in circumference. This tree is forty years old. There is a Magnolia fuscata 18 ft. high, M. Hartwegi 21 ft. high, and a fine specimen of M. Campbelli, A Wellingtonia gigantea sent from London by Messrs. Veitch, in 1858, only 11 in. high, has now reached 50 ft., and has ripened seed this year; a Cryptomeria elegans, 21 ft.; a Laurus Camphora, 49 ft.; a Laurus glandulosa, 51 ft.; a Laurus regalis, 17 ft. high, and a Phœnix dactylifera, whose trunk without leaves is 11 ft. high. Without tiring your readers with further description, I will only add the names of some of the most remarkable plants growing there. There is a very large collection of Conifers (amongst which are some magnificent Mexican Pines, which astonished Linden and Roezl), Cypresses, and Abies of all kinds, Retinosporas, Thujas Torreya, Dammara Browni—all beautiful specimens, which, enchant all connoisseurs. Amongst Palms there are splendid Chamærops of different varieties, a beautiful specimen of Jubæa spectabilis, Sabal Adansonii, Cocos australis, several varieties of Phœnix, a large collection of beautiful Agaves, (amongst which A. Franzosinii is very striking), Dracæna indivisa and lentiginosa, Doryanthes excelsa, Bonapartea gracilis, glauca, and juncea, Cycas revoluta, Gunnera scabra and manicata, several varieties of Phormium, a splendid collection of Bambusæ, Rhus sneecedanea, Cerasus Capolini, Illicium anisatum (now all bearing fruit), Piper Fitocatzura, &c. For some years there have been Balantium antarcticum and Xanthorrhæa grandis growing there, which are succeeding perfectly. The name of the head gardener of this Villa, who has sown and cultivated these plants, is Signor Paolo Cazzaniga.

DELLA VALLE DI CASANOVA.

Abutilon Boule de Neige.—This is the best of the Abutilons. Its flowers are large and white. It blooms throughout the whole year, and therefore is alike desirable for the conservatory or garden. Its growth is rapid—small plants attaining, according to a writer in "Moore's Rural," the height of 5 ft. during the summer months. In autumn it may be cut back to any desirable size and potted for the winter, when it will quickly recover its symmetry and resume its ever-blooming habit. Its quick and exceeding popularity is a sufficient guarantee of its merits.

THE FRUIT GARDEN.

KEEPING LATE GRAPES.

DURING the autumn and winter months the keeping of Grapes in good condition for dessert is frequently more perplexing than their culture up to the period of ripening, principally from the following causes:—(1) From growing sorts not adapted for late keeping; (2) from not having the roots under control; and (3) from having the fruit indifferently matured. Selection of sorts is of the utmost importance; for it is quite as easy to have Lady Downes and similar varieties in good condition late in spring, as it is to have Hamburgs and other thin-skinned varieties presentable at Christmas. Yet in numerous places, more especially those of limited extent, little attention is paid to selection, and the consequence is that when little artificial heat is applied, the crop is no sooner ripe in autumn, than, on account of the heavy rains falling on unprotected borders and the atmosphere (which is usually moist at that season) mouldiness of berry, and mildew on the leaves make great havoc with the crop, which, instead of furnishing a supply for several months, is obliged to be consumed or got rid of in as many weeks. There is, however, no lack of kinds that will keep well, such as several varieties of Muscats, Lady Downes, Alicante, Barbarossa, Raisin de Calabre, and similar sorts, which when fully matured excel in sweetness many of the more luscious summer varieties; but the flesh is firmer and the skin is thicker, properties to which they owe their good keeping qualities. In the event of a new Vinery being erected it is better to have two small houses than one large one, in order that distinct treatment may be given to early and late sorts; for, whereas Hamburg, Sweetwater, and Muscadine may be grown in perfection with little artificial heat, most of the late kinds require a good supply of heat to prepare them for keeping a long time; the bunches should also be thinned much more than those of early sorts. But in the event of requiring to substitute late sorts for early kinds in established houses without losing a crop, the readiest method is inarching on growing shoots at the base of each Vine which it is wished to change. This operation is easily performed as follows:—Procure the required sorts of Vines in pots one year old, cut them back close in winter, and in spring start both about the same time, or in preference, the scions a little earlier than the stocks to be operated on; and when the shoots are about 1 ft. long, place the pots close to the base of the strongest shoots; take a slice off both stock and scion, so that when bound together the edges fit exactly; if a tongue be cut in the scion, and let into a slit in the stock, a union will be more rapidly effected. The stock should be stopped at one or two leaves above the graft, which should be trained up near the glass. When the union is effected, the scion should be gradually severed from its own roots, and it will be, if all go well, by the end of the growing season a strong fruiting cane fit to bear several bunches of Grapes the following season, and by thinning out the oldest rods by degrees, an entire change of varieties may be effected in about three years. Almost any kind grows freely, and many sorts are greatly improved by being worked on the Black Hamburg. For trying seedlings or any new sorts, I always adopt this plan in preference to planting young Vines in old borders. Protecting Vine borders from excessive rainfall is also a most important matter in the case of late Grapes, and many contrivances are resorted to for this purpose. Wooden shutters and light framework covered with oilcloth carry off the rain, but they exclude sun-heat, so that when practicable, glass lights are best. Any close coverings, such as leaves, Ferns, &c., require some waterproof covering in addition, for by excluding light and air they make the borders more sodden than if they were entirely unprotected. I have here a good illustration of the effects of inside borders in the case of an old Black Hamburg Vine on the back wall of a Muscat Vinery. In this case, the roots run under a paved pathway, where there is no opportunity of giving much root moisture, and yet no difficulty is ever experienced in keeping the fruit in good condition longer than, to all appearance, better fruit on Vines growing in outside borders. An exaggerated importance is often given to size of bunch and berry, to the exclusion of equally important points of culture. If size

were the only point to be arrived at, rich borders and plenty of root moisture at all seasons would doubtless be desirable; but there can be no question that moderately large bunches, well ripened, are preferable to large ones for late keeping. Grapes are much more extensively grown for use than for exhibition, and bunches weighing 1½ lb. to 2 lb. each, and plenty of them, are what the majority of cultivators require. With carefully selected varieties, grown in a light, airy house, with a command of heat sufficient to ensure a light, buoyant atmosphere, the roots entirely under control as regards moisture, and the borders made of good loam, and manure sparingly applied, the bunches will be of medium size, but of the finest quality.

Henham.

J. GROOM.

SCARCITY OF COMMON FRUIT.

THE paper read by Mr. Bartley before the Society of Arts on the above question, and given in THE GARDEN (p. 41), is of the greatest importance to the bulk of householders, for the scarcity and dearth of common fruit make a great inroad on their incomes when limited. There is little doubt but that Mr. Bartley's paper must convince every one that, by increasing the production of common fruits on waste lands, commons, and hedgetows, more abundant supplies could be sent to the markets, and at a cheaper rate. Without entering into the statistics of how much might be done by utilizing railway embankments, waste lands, and commons for fruit growing, my object is simply to give lists of the varieties of common fruits which I believe to be best adapted for bringing in large returns on account of their hardiness, freedom in bearing, and general good qualities for use. My experience of fruit growing in the Midland Counties has a range of forty years, and all the varieties which I intend noticing I found best for growing on all soils and situations. To begin with the most valuable and wholesome of all common fruits, the Apple, which, next to that useful vegetable, the Potato, is the most worthy of increased production. With the Apple this can only be done when the trees are grown on free stocks, for, although on dwarfing stocks finer fruit can be grown in orchards and gardens, where experienced cultivators attend to their wants by judiciously pruning and manuring them, yet they never could furnish a sufficient supply of fruit for the million. If Apple trees on the free stock were planted on waste lands, railway embankments, and in cottagers' gardens, to a greater extent than at present, there is not the least doubt but that our importation of foreign Apples would be greatly reduced. There would be no occasion for great expense being resorted to in trenching the ground when planting the trees, for the Apple is very accommodating, and grows well where the ground is covered with Grass, or even where the soil is hard and stony; but on gravelly sub-soils the roots often canker, and trees planted on such are, as a rule, unproductive. Of course, where Apple trees have been planted in orchards, where the soil has been properly trenched and drained, and attention paid to pruning, and plenty of manure has been applied to other plants near them, their production of fruit will be greater and finer than on land where these advantages have not been experienced. The following is a list of some of the common fruits, which I believe will be found to be suitable for growing in quantities for a better supply to our markets in the different months, divided into early mid-season and late kinds.

APPLES.—*Early kinds*—Astrachan, Irish Peach, Keswick Codlin, and Hawthornden. *Mid-season kinds*—Lord Suffield, Dutch Mignonne, King of the Pippins, and Cox's Orange Pippin. *Latest and most valuable kinds*—Blenheim Orange, Alfriston, Damelow's Seedling, and Starmer Pippin; and if quantities of only three varieties of the different sections were selected for planting, I should recommend Lord Suffield, Blenheim Orange, and Starmer Pippin.

PEARS.—*Early kinds*—Beurré Giffard, Clapp's Favourite, Beurré d'Amanlis, and Williams' Bon Chrétien. *Mid-season kinds*—Louise Bonne of Jersey, Doyenné du Comice, Thompson's, and Marie Louise. *Latest-keeping kinds*—Winter Nelis, Josephine de Malines, Bergamotte d'Espéren, and Beurré Rance.

PLUMS.—Some varieties of these might be also more extended in their cultivation by being planted on waste lands, such as the Early Prolific, Rivers' Early Damson, Green and Oulin's Golden Gage, Kirke's, Victoria, Diamond, Prince Engelbert, Belle de Septembre, and Impériale de Milan.

BUSH FRUITS.—Of the various small bush fruits, the supply might be increased to an immense extent by planting Currants, Raspberries, and Gooseberries in uncultivated corners of gardens and orchards. It is surprising what a quantity of Raspberries can be grown in a small space in a suitable light soil made as rich as possible with rotten manure, and never digging amongst them, except to take up

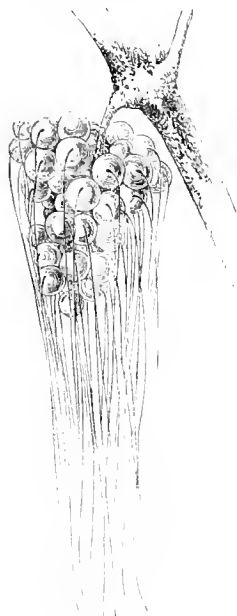
the running canes when too numerous. Black and Red Currants should be treated in the same way, for they all root near the surface, and their fibres should never be disturbed by digging near them, only adding some manure to them every year. The greatest error in growing Gooseberries when quantities are required is the severe winter pruning usually given them; all the pruning they require should be performed in the spring, when all danger from birds attacking their buds is over, and then only some of the branches in the centre of the bushes should be thinned out, without spurring the young shoots to raise a lot of spray for another year.

Welbeck.

WILLIAM TILLERY.

BEARDED GRAPES.

DODDERS are described as leafless vegetable parasites, maintaining their existence by twining round other plants, into the stems of which they insert their sucker-like roots. In appearance they simply resemble numbers of fleshy threads. Both in this country and abroad they are pests to Flax and Clover crops, but occasionally they adopt other plants as foster-parents, and in some localities attack the Vine with the curious result represented by the accompanying sketch. In this case



Bearded Grapes.

the Dodder affixes itself to the berry, living and thriving so well on its juice, that it frequently forms a tassel or beard hanging down from each bunch 4 ft. in length. That the Dodder's appearance on the Vine is due to one of its seeds falling on the fruit or other part of the plant, and there germinating, would seem scarcely probable. The much more likely explanation is, that the parasite has spread from Clover grown between the rows of Vines, this method of cultivation being a common one in South Tyrol, where bearded Grapes are most frequently met with. According to a communication from Baron Hausmann to the Vienna Zoologisch-botanische Gesellschaft, the peasants of Bozen, Eppan, and Salern, in the country just named, sometimes amuse themselves by twisting the stems of the Dodder round a neighbouring bunch of Grapes, and thus what might be taken for a freak of Nature is in reality not so, but the result of artificial intervention. In any case, judging by past experience, no fear need be entertained of the Dodder assuming the character of a Vine plague, or bearded Grapes becoming anything more than a curiosity.

T. S.

Mrs. Pince's Black Muscat Grape.—Mr. Smith, of Waterdale (see p. 39) has apparently struck the right point as regards colouring this Grape, which doubtless should have the best part of the year in which to ripen. It is a Grape with which I have not had much experience, but I have recently seen two Vines of it in a late

house, in which its foliage was in fresh condition, while that of Muscat, Alicante, and others was nearly all shed. It, therefore, seems reasonable to suppose that a Vine, which is late in shedding its leaves, will also be late in ripening its fruit; at any rate a Vine, whose leaves remain long in a green state, will also be late in ripening its wood.—ROBERT MACKELLER, *Abney Hall, Cheddar.*

Foster's Seedling Grape Best when Shrivelled.—This Grape is noted as an early and abundant-bearing sort rather than as in any way remarkable for its flavour. On the former ground it is not unusual to include one plant at least as worthy of a permanent position in the early Vinery, and as it almost invariably leads the van as regards ripening, it generally receives a due amount of appreciation. During the past summer at Tranby Gardens in this neighbourhood, where a range of Vineries has been recently erected, a couple of very fine bunches of this Grape were sent in for dessert, but though full ripe in the ordinary acceptation of the word, they met with such scant favour that the following day the gardener had instructions to remove the Vine and to send no more such flavourless Grapes in for dessert. There were several more bunches on the Vine, and there they hung for some six weeks longer, when they assumed a darker colour and began to shrivel. Of course Hamburgs had got into good cutting condition long before this, and were so much more appreciated that the doom of Foster's Seedling was all but sealed. One day, however, the gardener tasted one of the shrivelled berries, and to his surprise found that it possessed a delicious flavour; so much, indeed, was it improved, that one could not recognize it as the same Grape. He thought he could not do better than put it to the test again, so on the same day he sent in a bunch for dessert, and the first inquiry the following morning was—"What was the name of that delicious Grape sent in for dessert yesterday; it was new to all the company?" The reply was that it was none other than the condemned Foster's Seedling. I need only further add that a reprieve was at once granted, accompanied by instructions to plant another Vine of it. Possibly a knowledge of this fact may be of value to Grape-growers.—JAMES C. NIVEN, *Botanic Gardens, Hull.*

Peaches in Pots at Llanover.—The following is a list of Peaches grown in pots in a cold orchard-house here, viz.:—Hale's Early.—This ripened first. It is an excellent Peach, the fruit of which is usually good in quality. Early York.—This is likewise a good Peach, but not quite so early as Hale's, nor is its fruit so large, but it is good in quality. Early Beatrice.—With me the flavour of this was very inferior compared with that of other kinds; I, therefore, only grew it one year. Grosso Mignonne.—This is one of the best of Peaches for pot culture. It is a free bearer, large in size, and excellent in flavour. Noblesse.—This is a handsome Peach, and I have seen it do remarkably well, but here it is very indifferent. Crawford's Early.—This is a magnificent Peach, large in size, and excellent in flavour. Royal George and Royal Kensington are grand in every respect. Barrington is also a very handsome Peach, but a shy bearer, and liable to split and drop. Stump the World is a fine Peach of high quality, very prolific, and one which should be in every collection. Princess of Wales is one of the best Peaches in cultivation, very handsome, and excellent in flavour. Wallbrton's Admirable is well known to all who appreciate a good late Peach; of this I gathered four dozen of medium-sized fruit from one tree. Of Neefatines, I grow Lord Napier, Elruge, and Pitmastou Orange.—E. M. DAVIES, *The Gardens, Llanover.*

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Moss on Fruit Trees.—"J." asks (see p. 59) how to destroy Moss on fruit trees? Owing to the dampness of the climate in Cornwall both fruit trees and other deciduous trees are often covered with Moss, for which I have found fresh wood-ashes the best cure. Some years ago I used lime, but finding it injurious to Rhododendrons and Camellias, I tried wood-ashes, and found them most effectual in destroying Moss; I, therefore, have used nothing else since.—THOMAS T. BOSCAWEN, *Lumoran Rectory, Probus.*

Early Strawberries.—Mr. Groom tells us (see p. 47) that we cannot get ripe Strawberries, to have a true Strawberry flavour, before the first week in March. Thirty years' experience has taught me that we cannot get them really well flavoured before the first week in April.—K. S.

Free-bearing Pears.—Allow me to inform Mr. Fish (see p. 47) that I placed Bergamot Espere second on the list, on the supposition that I had to grow but two kinds only; of course as other kinds were added, this variety would descend in the list considerably. Our trees of it are on the Quince stock, and occasionally there is the slightest trace of grittiness in the fruit, but I consider that its general excellence and productiveness more than counterbalance that.—W. WILDSMITH.

Strawberries Losing their Foliage.—All kinds here, I suppose from the excessive rains, have either lost their foliage, or it has turned brown, with the exception of that of Laxton's new Strawberry Pioneer, which is glossy and quite fresh, thus showing that it has a good constitution. This variety received a first-class certificate at South Kensington in July last.—R. GILBERT, *Burghley.*

COTTAGE GARDENING.

Cucumbers.

To CUCUMBERS under glass I have previously alluded in my remarks on turf-pits, but not with sufficient detail. Unless the resources in the way of heating materials are almost unlimited, the end of February or early in March is time enough to begin; and if only two or three plants be required for a small frame or pit, it will be better to buy them, as they can usually be obtained at 1s. each, and be brought home just at the time the bed is ready to receive them. If the plants have to be raised at home, a small seed-bed should be made early in February for raising the young plants, and the making of the main bed must be so timed as to be ready just when the young plants are fit to go out. If a hotbed and frame be used for their culture, the bed should be 4 ft. or $4\frac{1}{2}$ ft. high at back, gradually sloping down to 3 ft. at front. If built on sloping ground it will be an advantage, as then it might be of equal thickness. It should also extend considerably beyond the frame on all sides—1 ft. will not be too much—and there will be no occasion to put linings to it to keep up the heat if the bed be not put up before March. Stable manure and tree leaves in something like equal proportions are well suited for hotbed-making, and if well mixed together ten days or a fortnight before required for use, no further preparation will be necessary; but if manure fresh from the stable alone be used, a longer preparation will be required, in order to get it into a thoroughly sweet condition before the bed is made up. Should this operation be neglected, the bed will probably be so hot that nothing can be put in it for some time with any chance of success, and then the heat will decline suddenly, and the bed will require to be lined with warm manure to restore it to the requisite temperature. In making up the bed some pins should be taken to apply an equal amount of pressure all over it, so that it may settle evenly, neither making it so solid as to prevent fermentation, nor yet leaving it too loose or open, as in that case the fermentation would be too rapid. A medium way as to firmness is best, and will be found to produce a regular steady heat for the longest period, and this is undoubtedly the most essential point. A small one-light frame, 5 ft. by 3 ft., will be quite large enough to raise the young plants, and if 6 in. or 8 in. of sawdust or Coconut refuse be placed inside the frame the seeds may be sown without loss of time. There is no better plan than sowing the seeds singly in small pots and stopping them when they have made the second rough leaf, and if the bed be not ready to receive them put them into 48-sized pots rather than allow them to become pot-bound or starved; for checks of this kind are more injurious to early Cucumbers than later ones, when more light and sun-heat are available. When the main bed is ready for the plants put one good barrowful of soil in the centre of each light: turfy loam slightly enriched is the best. It is a common error to use too rich and too light a soil, the consequence being the filling of the frame with weakly, long-jointed growth, but with a paucity of fruit, and those few will, in all probability, turn yellow and refuse to swell. A very thin stratum of soil is sufficient to start with; 3 in. in depth will in most cases be ample. If there be any danger of the heat rising too much, a layer of turves may be placed under each hill, and 2 in. of soil may be placed over the bed to keep down any noxious gases that may be evolved; but if the bed have been properly made there should be no danger to apprehend from this or any other source. Although, as I have previously stated, no great depth of soil will be required when the plants are put out, yet as soon as they begin to grow the white roots will come out on the surface and will require sprinklings of fresh, warm soil, once or twice a week to cover them through the growing season. Later on, when the plants are in full bearing and may perhaps be showing signs of exhaustion, a top-dressing of short, mellow horse-manure will be beneficial. Many small growers allow the shoots to grow too long before stopping; this is a great evil, as it fills the frame with a quantity of useless material, and necessitates severe pruning. There is only room in a frame for a limited number of fully developed leaves, and if too much growth be encouraged it induces a weakly habit, the foliage becomes thin and poor, and ultimately turns yellow and decays.

In a well-managed Cucumber frame the knife should not be much required; in fact, only to cut the fruit. The finger and thumb will do all the necessary pruning if used in time. All shoots should be pinched one joint beyond the fruit; to leave more only needlessly crowds the foliage. In the matter of ventilation, so long as the atmosphere is sufficiently charged with moisture, Cucumbers thrive in a close, warm place. As a rule, it is a safe plan to give a little air at the back, early in the morning on bright and warm days, gradually increasing it up to eleven o'clock; and syringing with soft, tepid water about half-past two or three, or later according to the season of the year, and close the lights at the same time. Cucumbers, like all other plants when out of health or in a weakly condition, are liable to be attacked by various insects and fungoid parasites, and the main object—viz., the healthy development of the plants—should be always kept in view, and will be secured by using fresh, sweet, healthy soil, by having everything in and about the frame, pit, or glass, scrupulously clean, by always keeping the growth moderately thin, not allowing the frame to become choked with growth, for this is a sure way of breaking down the constitution of a plant, and bringing it into the condition that renders it liable to become a prey of insect or other pests. There is always a very close relationship between cause and effect. For instance, if red spider attack a plant, it indicates a lack of moisture either in the atmosphere or at the root, or perhaps both, and if attended to in time, by giving plenty of moisture and a close atmosphere for a few days, the enemy will be easily overcome. If the foliage be spotted with mildew, it is generally a sign of stagnation somewhere, either at the root or in the atmosphere, and whilst the necessary remedies are applied—in this case dusting with sulphur—the cause should be removed; and so it is with aphides: if we could go back to first causes, we should find that their presence was in many cases due to some check sustained by the plant, which had perhaps at the time passed unnoticed, or had been forgotten. There is another disease of a gangrenous character to which Cucumbers are occasionally subject that is probably due to deficient action or circulation of the sap in the plant somehow, the true nature of which is hardly yet understood. Stamping out in this case appears to be the best remedy. Fumigation with Tobacco is the best remedy for green fly and thrips, but it must be done with care, for if the Tobacco be allowed to blaze or flare, some, if not most, of the leaves will be scorched. Fumigation must only be attempted when the foliage is perfectly dry. I need hardly say that mats or warm covering of some kind must be placed over the glass every evening till July, nor yet that all water in all the early stages of growth must be raised to the temperature of the frame before use. One way of managing this will be to keep a pot full in a corner of the frame. I have found no better Cucumber, all things considered, than the Telegraph, either for hotbed or house cultivation.

E. HOBDAY.

Age and Leafing of Trees.—According to Professor Decaisne, of Paris, and Professor Carnel, of Pisa, it would seem that age has nothing to do with the date of the leafing of trees. In some cases the old and young trees of the same species burst their buds at the same time, while in others the older, in others the younger, developed their leaves first. But the most valuable and original material for affording some light on this subject was "a series of observations made upon two trees of the same height above the ground during fifty-seven and sixty-eight years respectively." These observations were made upon two Horse Chestnut trees at Geneva, and are regarded by M. A. de Candolle as perfectly trustworthy. The average date of the leafing of the one longest under observation is 91.9 days after January 1, and of the other 93.61 days. Dividing the whole term into six, four, or two periods of equal duration, the average dates exhibit no essential progression or retrogression. But it is worthy of remark that during the third period of seventeen years, 1812-58, the average is 2.5 days later than during the fourth period, 1859-75. Observations on a Grape Vine by Messrs. Macleod and Lanezweert at Ostend, from 1843 to 1875, indicate a gradual forwarding of the date of leafing. Thus, during the first period of sixteen years the average date was 16.6 days later than the average of the succeeding seventeen years; but De Candolle thinks this may be due to diminished vigour or pruning and other artificial conditions.

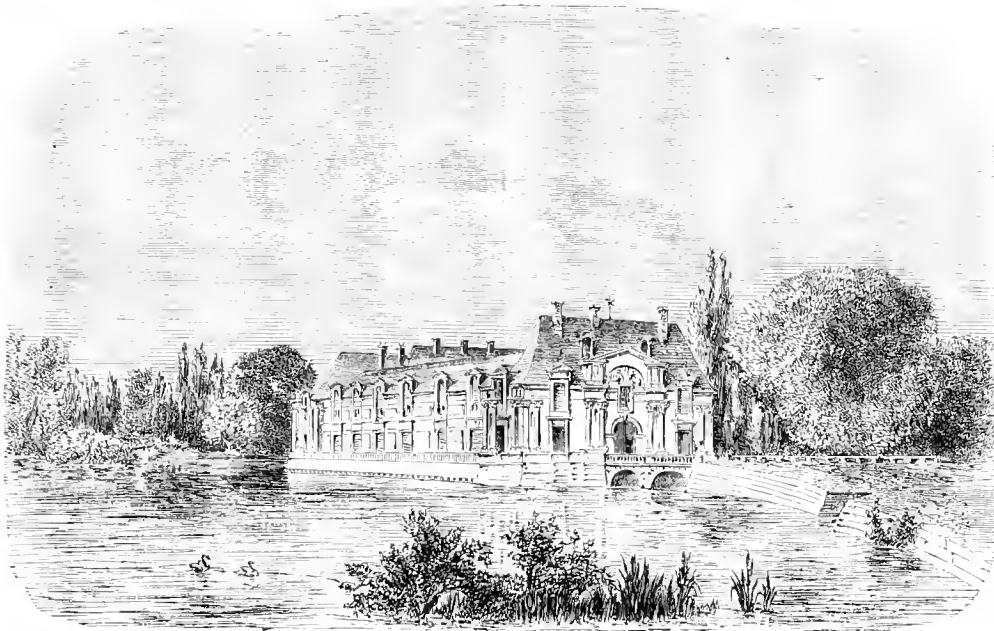
CHANTILLY.

THIS noble old French demesne, now barely known otherwise than as the Ascot Heath of the Continent, contains some of the finest woodland and forest scenery to be found within a thirty-mile radius of Paris. Originally a wild forest, affording game in abundance, it was long a favourite hunting-ground, and doubtless that led to the establishment of the magnificent chateau of which that represented in the annexed engraving is but a fragment. Some five or six years ago, however, preparations were being made to restore this old hunting palace of the Princes of Condé to its former greatness. The gardens are extensive, but, owing to the place having long been confiscated and the chateau unoccupied, they have been much neglected. The principal charm of the place as it at present exists is its thousands of acres of forest, through which shady walks and hunting paths extend in all directions for miles. Here may be seen excellent examples of Oak, Beech, Elm, Poplar, Lime, Acacia, and other deciduous trees intermingled here and there with the more sombre tints of Pine, Fir, Yew,

and a few other Conifers as well as other evergreens. The broken fringes of the great forest, stretching away as far as the eye can reach, are very beautiful, especially when clad in rich autumn tints. The chateau itself is partly surrounded by water, and about three miles from it is a small lake and an antiquated, turreted chapel, which although not exhibiting any particular architectural beauty, is especially attractive as the centre of some very beautiful and varied tree and water scenery. Here during the warm summer evenings may be heard the united melody of countless numbers of nightingales, which congregate in this sheltered spot. A few red and fallow deer may also at times be seen in the open forest glades, and the lakes near the chateau are well stocked with carp and other fish, which come quite close to the bank to be fed. The gardens and grounds are open to the public on Sundays and fête days, and the forest itself is intersected by public roads, one of which leads to Morte Fontaine, where there is another old chateau; this latter is, however, comparatively unimportant, and is principally interesting to horticulturists on account of its containing the nurseries of MM. Chantrier, where thousands of Dracenas, Ficuses, Ferns, and other deco-

orative plants of that kind, as well as Roses and fruit trees, are grown for the Paris markets. The village of Chantilly itself contains several hundreds of English residents, who have here and there some pretty gardens, and in the spacious yard of the Hotel de France several large Oleanders were, when I saw them some six years ago, literally masses of rosy flowers, and an old shed close by was completely covered with the rambling branches of *Bignonia radicans grandiflora*, some of which were literally wreaths of crimson flowers and fresh green leaves. This last-named plant and the Oleanders, indeed, seemed perfectly at home near Paris, where the profusion of flowers which they produce is doubtless owing to the dry, hot autumnal weather thoroughly ripening their wood. F. W. B.

Frame Coverings.—The coverings alluded to by Mr. Cornhill and "W. N." (see p. 40) do not possess the lightness sought for by "South Italy," as if made of straw, even in the most careful way, they will absorb and retain moisture until they become both heavy and valueless. What straw protectors could have withstood the



Chantilly.

recent wet weather for any length of time without becoming saturated? What is required is a kind of protector that is at once strong and light, and that will be impervious to moisture. Probably the most serviceable and enduring would be one constructed with sides and ends $2\frac{1}{2}$ in. by 1 in., made the size of the frame lights to be covered; over this crosswise should be nailed a covering of $\frac{1}{4}$ -in. boards, and over this again a layer of any textile material, such as old sacks, pieces of carpets, or other non-conducting material, and then over all a covering of stout oiled calico or canvas. To keep this latter thoroughly impervious to rain, it would be necessary to give it a fresh dressing of oil or other non-absorbing substance every year, but the cost would be trifling compared with the usefulness and neatness of such protectors. Even the straw coverings so commonly used would be all the better if protected from the rain with a dressed covering, and the additional period they would last would more than repay for the small extra outlay.—A.

Fruit as a Medicine.—The regular and moderate use of well-ripened fruit is not so widely appreciated as it should be. Residents in regions where more or less malaria prevail, have, according to a writer in the "Country Gentleman," discovered that nothing is a surer preventive of its deleterious effects than a regular supply of fruit. Fruit will not only prevent disease, but in some instances it has proved one of the best medicines to cure it.

THE KITCHEN GARDEN.

PEAS AND THEIR CULTURE.

VARIETIES of Peas, like all kinds of produce for which there is a large demand, are continually increasing, so that to make a selection from catalogues has become a hopeless task. Starting with early kinds, except for the first few gatherings, the earliest section of Peas is scarcely worth growing when compared with the rich melting flavour of the Marrows that come in later; but as the aim of most growers is to get Peas as early as possible, a sowing is generally made of one or other of the small round kinds. Having tried most of these, my favourite is Ringleader, which, although an old variety, is still one of the earliest and best, a good cropper and very hardy. Laxton's William the First is, however, nearly as early, and, being of better quality, it is a desirable Pea to cultivate. Among Peas which he has raised this is almost the only really useful kind, as most of the others are later sorts, and vastly inferior as regards flavour to others that have been cultivated for many years. The large pods which some of these Peas have were the means of bringing them into notice; but then they are mere wind-bags, and Peas are not worth growing for the sake of their pods, however showy they may be. As a dwarf-growing, free-bearing, compact Pea for sowing on a warm sheltered border, Maclean's Gem is unsurpassed, for not only is it a most prolific bearer, but it is everything that can be desired when cooked. Were I only to grow one kind of Pea, this would be the one, as it has all the good qualities which a dwarf, early sort can possess, and from not being more than about 2 ft. high, a few twiggy sticks suffice for its support, a consideration near towns where Pea sticks are difficult to obtain. For sowing in open quarters to succeed the first earlies, there is none that equals the old Advancer, which is really in every respect a first-class Pea. This variety grows to the height of about 3 ft., branches freely, and bears nearly up the entire length of its haulm a number of well-filled pods, the Peas in which are of good colour and delicious flavour. To follow on the heels of this, a sowing of Veitch's Perfection should be made about the same time, and, where a regular supply is wanted, continued at intervals of a fortnight till the middle of July. Take it all in all, this is by far the best dwarf Pea in cultivation; but one mistake which many make is sowing it too thickly, a circumstance which, on account of its robust free-branching habit, causes the haulm to become so thick and crowded as to spoil the crop. In good, rich, deep soils—and, if it can be avoided, Peas should not be grown in any other—this variety should rather be planted than sown, as the seeds ought not to be nearer each other than from 1 in. to 2 in. Unless collections are desired, the kinds just named are sufficient, as far as dwarf sorts are concerned, for any garden; and they are varieties which will be sure to give satisfaction; but where room can be spared and stakes obtained, then I would recommend every one to grow *Ne Plus Ultra*, a truly grand Pea and perfect in every respect. This, too, should be sown thinly, and, if possible, at intervals of 10 ft. apart, as then both sides of the row get plenty of light, and heavy crops of large well-filled pods are the result. Besides the convenience of gathering and a great increase in the yield, raising Peas at wide distances apart has other advantages, such as affording suitable shade to Celery, Cauliflower, and Lettuce, that always succeed much better when so treated than when grown in any other position. As before observed, Peas require a deep, rich soil, and in order to spare unnecessary labour, I make it a rule to sow them where Celery has been growing the year previous and *vice versa*. The advantages of this will be obvious at a glance, as the one prepares the ground for the other. To grow Celery well, the trenches must be heavily manured, of a portion of which the Peas get the benefit, and the deep digging necessary for its cultivation and in taking it up, is just what the after crop requires, as the roots can penetrate far down and be in a measure independent of the weather or other aids for a supply of moisture.

It is to be feared that early-sown Peas this year will be a failure on account of the excessive wet or the exceeding mildness of the weather, which has brought them on so forward that the first frost is sure to cut them off. With the land in

its present state it is useless sowing seeds, as they would only rot in the ground; therefore where very early gatherings are looked for, expedients of some kind must be adopted. The readiest way of getting over the difficulty is to sow in boxes or pans of finely-sifted leaf soil, and to place them in any vacant situation under glass where they can be kept close till they germinate and get fairly up, when they must be set well up to the light and have plenty of air to prevent them from becoming etiolated or drawn, which they soon would do if at all thick. Various other plans have been adopted in raising early Peas, such as sowing on strips of turf and in drain tiles filled with soil, but both take up much more room, time, and labour, and are not one whit better, as Peas transplant just as readily and safely from the leaf soil as when treated in any other way. By the middle of March, if the weather be anything like favourable, Peas sown now as just recommended may be safely ventured out on any sheltered border or quarter, where they may easily be put into rows by drawing a deep drill by means of a hoe or chopping one out with the spade so as to admit their roots without being cramped or doubled up. The fineness of the leaf-soil will admit of their being divided to any extent without injury, so that they can be laid in thinly at the time of planting, and when this is done they should be protected by having a few sprigs of small-leaved evergreens stuck along one side of the row to break the force of any cold winds that may occur.

Sparrows do much damage to Peas just after they emerge through the ground, or when planted out in this way, nipping off each leaf as it appears till the plants are entirely crippled, unless some effectual means be adopted to prevent their attacks. Nothing answers the purpose better than the galvanised wire Pea guards that are now sold so cheaply by most ironmongers, as these put them quite at defiance, and if taken care of when out of use will last a lifetime, so that the first cost ought scarcely to be a consideration, as they do away with all annoyance and disappointment in securing a crop. In cases where these are not at hand, a ball or two of common black cotton run up and down about three times, just above the heads of the rows of Peas, and supported in that position by a few small sticks, will generally keep them at bay, as they become alarmed when they alight and find their wings entangled; or the tops of Peas may be made disagreeable to their palates by sowing some dry soot over them while the dew is still on them, an operation which will also answer the double purpose of preserving them from slugs, which this year are more than usually troublesome, and will be so unless we have some sharp frosts to come upon them unawares before they have time to bury themselves in the ground. Besides the above, growers of Peas have other enemies to contend with, the most formidable of which are rats and mice. After trying many remedies for these, I find nothing equal to paraffin oil, a tablespoonful or so of which is sufficient to soak a quart of Peas, which, when so treated, are left unmolested, and are not in any way injured.

It may not be generally known that the young green tops of Peas make delicious soup, a luxury that may be enjoyed all through the winter. Of course it will not do to sow choice sorts for purposes of this kind, as that would make the soup come rather dear; nor is it necessary to do so, as any common cheap Pea will do equally well. The best way to treat them is to sow thickly in boxes or pans containing light soil; and if wanted quickly, to stand them where they will get a little heat, when they will soon be up ready for use, which will be directly they are about 1½ in. long. If allowed to get more forward than this they lose much of the delicate Pea flavour, and do not become incorporated with the soup so readily as when they are young and tender.

S. J.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Veitch's Self-protecting Autumn Broccoli.—I can fully endorse "W. G.'s" remarks (see p. 28) in reference to the usefulness of this Broccoli, but I am unable to cut from it at the time when he cuts. Would he kindly tell us at what time he sows, and if it requires anything more than an ordinary kitchen garden border?—J. W., *Leicester, Leicestershire*.

Bennett's Schoolmaster Potato.—In giving us this excellent variety of Potato, Mr. Bennett has done us good service. It is perhaps best described as an improved Regent.—R. GILBERT, *Burghley*.

THE FLOWER GARDEN.

PENTSTEMONS AND THEIR CULTURE.

PROBABLY no other hardy flower has been so much improved, and become so widely popular, during the last twelve or fifteen years, as the Pentstemon. It is now some years since it was taken in hand by cultivators with a view to its improvement, and by careful seeding from such attractive species as *P. gentianoides*, *P. Cobæa*, and others—but these two mainly—there has been obtained a race of very fine hybrids, the flowers of which are large in size, with long, trumpet-shaped tubes; bold and striking in appearance, varying much in colour, from pure white down to a dark, puce crimson; self-coloured, parti-coloured, flaked, and margined. The variety of colour is very great, and the new kinds produced each succeeding year show an increased size and a bolder character. Thirty-five years ago, *P. gentianoides* (*Hartwegi*) was much grown, and we used to esteem it a gem among hardy plants in the mixed border, and beds of this species used to make an attractive feature. Where it used to do so well was in a warm, sunny spot on the gravel in the south of England. The plants remained out-of-doors all the winter, and were simply lifted and re-planted early in spring. When it was desired to increase the stock, the plants were divided at the roots in the ordinary manner. Then we were unaware of the rich harvest in the form of hybrids which were being produced. Each succeeding generation is privileged to see something of higher value in the way of floral beauty than that which pre-



P. Jaffrayanus.

P. ovatus.

ceded it. The work of improving the Pentstemon has been carried on both by Continental and British cultivators, each realising important results.

Pentstemons succeed in any good soil; they are very accommodating, but in a good loam enriched with manure and leaf-soil they are certain to do well. They can be planted out singly or in groups in the mixed border or in beds, in which the various colours become charmingly blended. In some large gardens, where cut flowers are greatly in demand, I have seen beds of Pentstemons, Cloves, Asters, Stocks, and similar plants forming a kind of fringe to one of the walled-in divisions of a kitchen garden, or near the gardener's cottage, where they form attractive features. In an old-fashioned garden I once saw a huge circular bed having a centre of Hollyhocks, round which was a zone of Dahlias, and then a band of Pentstemons intermixed with *Gladiolus Brenchleyensis*, the circumference of the bed being filled up with ordinary bedding plants. In this arrangement the soft beauty of the Pentstemon was an attractive feature. The Pentstemon may also be used for ribbons, its continuous flowering character keeping it effective for a long time. Owing to the mild character of the autumn of 1876 Pentstemons were in full bloom quite up to Christmas.

The Pentstemon is increased both by means of cuttings and seeds. The former method must be resorted to in order to increase any particular variety. Cuttings should be taken in August or early in September, from the young growths thrown up round the main stem, and they should be put into a prepared sandy bed, on a shady border, under a hand-glass,

or in boxes or pots placed in a cold frame. They root readily, and those in boxes or pots might be wintered in this way, and not transplanted till spring. Those struck on the border should be lifted and potted, or planted out in a cold frame for the winter; or transplanted to the open ground in a well-prepared bed, and protected with a little litter or branches of evergreens during severe weather. Under general circumstances the young plants should not be planted out till the March or April following. When it is desired to increase the stock of any one or more varieties as rapidly as possible, the store pots of cuttings rooted in autumn should be taken into a gentle bottom-heat in spring, and induced to grow; and if the young growths be taken off as soon as they are 2 in. in length, and put in pans of sandy soil in the same temperature, they will quickly strike, and by May and June, if properly treated, will have grown into healthy plants. Seed only of the best varieties should be sown. The Pentstemon is a very free seeder, and there is no difficulty in obtaining some. In saving seed for sowing, only the very finest varieties should be selected for the purpose, and those showing novelty of character—for variation is always a most acceptable characteristic—and such flowers can scarcely fail to yield something well worthy of cultivation. The seed should be sown in February or early in March, in a gentle heat. It will quickly germinate, and when the plants are large enough to handle they should be pricked off into shallow boxes, and, after a time, hardened off in a cold frame. Here the plants can remain till the end of May or later, according to their size, and then be planted out in well-prepared beds. A generous soil will serve to bring out as fully as possible the quality of the seedling flowers. When they flower, which they will do by August and September, any varieties of extra good quality should be marked for propagation by cuttings or for seeding from, while the inferior ones will do for the mixed border. If the bed of seedlings be allowed to stand for another season (and it is always a good plan to do this), the seed-stalks should be cut away as soon as ripe, the bed cleaned, top-dressed with leaf-soil and short manure in spring, and it will yield a plentiful harvest of flowers the following summer.

The following are twenty-four beautiful varieties that may be obtained from any nurseryman making a speciality of the Pentstemon, viz.:—*Agnes Laing*, *Apollo*, *Apollon*, *Bridesmaid*, *Calliope*, *delicatissimus*, *Euterpe*, *Flora*, *Georges Sand*, *H. M. Stanley*, *Mons. Clément*, *Madame Louis Schmitzer*, *Monarch*, *Novelty*, *Pollie King*, *Giant*, *Iona*, *Stanstead Rival*, *W. E. Gumbleton*, *W. P. Laird*, *Secrétaire Cuzon*, *striatus*, *Volunteer*, and *Yeoman*. Of the species, *P. ovatus* and *P. Jaffrayanus* (of which the annexed are representations) well deserve cultivation. The flowers of *P. Jaffrayanus* are of a charming hue of blue, which is only to be found in a very few of the improved varieties. All the species are of an interesting character, and well repay cultivation. QUO.

Select Funkias.—Mr. Ellacombe (see p. 45) makes no mention of what I consider the noblest of all the Funkias, viz., *F. Sieboldi*, a fine species with creamy-lilac flowers and large cordate-pointed foliage, the latter quite of a tropical character, so much so, indeed, that it might well be used in sub-tropical gardening. I have seen it employed with good effect as an edging to a bed of *Yuccas*. However handsome *F. grandiflora* may be when well grown, it is not equal to *F. cordata*, a kind nearly as large as the former, but far handsomer in foliage, the beauty of which is enhanced by the leaves being thrown well out from the roots by means of very long petioles furnished with a narrow continuation of the leaf the whole length. Among variegated sorts perhaps *F. nodulata variegata* is the best—a perfect gem when grown in pots.—THOMAS WILLIAMS, *Ormskirk*.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Erica vagans alba.—In the churchyard at Eversley, Hants, and close to Canon Kingsley's grave, two large bushes of this Heath are now in full flower. Is not this unusually early?—W. H.

Early Primroses.—I have a quantity of Dean's varieties of Primrose in 48-sized pots sheltered in a cold Cherry-house, and they are just now (January 20) in full bloom. The diversity of their colours, varying as they do from white to a deep-set maroon, at this dull season renders them fit subjects for all kinds of decorative purposes; they are very effective, and should be grown extensively.—R. GILBERT, *Burghley*.

PLATE LVIII.

THE SPECIES OF FUCHSIA.

(WITH A COLOURED FIGURE OF *F. BOLIVIANA*).

By W. B. HEMSLEY.

THE genus *Fuchsia* has now been represented in our gardens nearly 100 years, and probably no genus of plants has enjoyed a greater share of general favour, or more richly rewarded the painstaking cultivator, and few things are more easily grown. Notwithstanding all these recommendations, and the fact that a few enthusiastic raisers still bring out annually a number of good, new varieties, there is no denying the fact that *Fuchsia*-growing has been for some years on the decline. This is not as it should be, and all the writing and talking in the world will not alter it; nor is it the object of this article to sing their praises. A brief sketch of each species, or merely the names of some few of the less ornamental ones, is all that space will permit. In a previous vol. of *THE GARDEN* some notes on the early hybrid and seminal varieties will be found; and this part of the subject the writer hopes to be able to work out more thoroughly. One thing appears certain, and that is, there has been much less intercrossing between distinct species to produce the cultivated varieties than one would at first suppose, or gather from the writings of some of the raisers of *Fuchsias*. As much information as could be compressed in the space is given under each species below, and, therefore, this introductory part shall be as brief as possible. The hardy varieties of No. 32 deserve the attention of every gardener. A selection of species, including all the main types of the genus, should embrace *F. arborescens*, *coccinea*, *corymbiflora*, *fulgens*, *macrantha*, *magellanica*, *microphylla*, *procumbens*, *simplicicaulis*, *spectabilis*, *splendens*, and *venusta*. In a larger collection the following should find a place:—*F. alpestris*, *bacillaris*, *boliviana*, *caracasensis*, *cordifolia*, *excorticata*, *integrifolia*, *lycioides*, *sessilifolia*, *serratifolia*, and *thymifolia*. Among handsome species not yet introduced, *F. ampliata*, *corollata*, *insignis*, *longiflora*, *petiolaris*, and *salicifolia* may be mentioned. The arrangement of the species adopted is not based altogether upon scientific grounds, but it will perhaps be none the less useful for horticultural purposes.

American Species having Petals.

I.—Species inhabiting the Andes of Bolivia, Peru, Ecuador, New Granada, &c. With few exceptions, noted in each case, the calyx-tube is longer (often several times longer) than the sepals, and the stamens rarely project beyond the petals when the latter are erect. The latter are usually smaller than the sepals, but sometimes larger, as in *F. corollata* and a few others.

1. **Roezl's Fuchsia** (*F. boliviana*).—This handsome *Fuchsia* is of compact habit, dwarf growth, and these qualities, combined with the brilliant colour of its flowers, require no recommendation. It belongs to the *corymbiflora* group, but in the absence of specimens, it is impossible to say anything more definite of its affinities. Mr. Roezl discovered it in Bolivia in 1873, growing at an elevation of, it is stated, of about 6000 metres (19,500 ft.), but this is doubtless a slip of the pen or a printer's error. It was exhibited at one of the meetings of the Horticultural Society a few months ago, and though not so showy as some of its congeners, it has a promising appearance.

2. **Cluster-flowered Fuchsia** (*F. corymbiflora*, Bot. Mag., t. 4000).—A tall species, with large leaves and terminal clusters of large, uniform, deep red flowers, something in the way of *F. simplicicaulis*, but the leaves and other young parts are very hairy, and the inflorescence does not lengthen out so much; neither are the leaves usually whorled. In cultivated specimens the lanceolate, long-stalked leaves attain 1 ft. or more in length, and the flowers are from 2½ in. to 3 in. long; the tube slender, and gradually tapering throughout; sepals and petals about ½ in. in length, the former reflexed close on the tube. The late Mr. Standish introduced this fine Peruvian species nearly forty years ago, but it seems not to have become widely dispersed in gardens. In its native country it forms long, flexible branches, which are supported by the surrounding trees and shrubs. In Paxton's "Magazine of Botany," 1849, p. 219, a *F. corymbiflora* alba is described. It was raised by Mr. Salter, of Hammersmith and Versailles. The tubes of the flowers are described as being of a carmineous whiteness at first, but eventually pure white, and the corolla, which the reflexed sepals fully reveal, of a brilliant crimson. A figure of this variety in the "Flore des Serres," t. 517, represents

the tube and sepals as pure white, and the petals as deep red suffused with purple. *F. dependens*, Hooker, "Icones," i., t. 65, is probably only a smaller-flowered, less luxuriant state of the same species.

3. **Single-stemmed Fuchsia** (*F. simplicicaulis*, Bot. Mag., t. 5096).—This is remarkable among the tall-growing *Fuchsias*, with large whorled leaves for its long, slightly-branched stems, terminating in long pendulous racemes of flowers, interspersed with large leafy bracts, gradually smaller towards the end of the inflorescence. The flowers are of an almost uniform crimson, 2½ in. to 3 in. long, the relatively short sepals and petals nearly equal in length, and slightly spreading, and overtopping the yellow anthers. A native of Peru, introduced by Messrs. Veitch, through their collector, W. Lobb, about twenty years ago. A magnificent ornament in a large conservatory.

4. **Crowded-leaved Fuchsia** (*F. confertifolia*, *Piedding and Gardner's "Sertum Plantarum,"* t. 28).—A dwarf, much-branched shrub, with slender woody branches, clothed with rusty bristly hairs. Leaves less than 1 in. long, oval, acute, almost stalkless, crowded especially at the end of the branches; flowers borne in small clusters at the end of the branches, slender, 1½ in. to 2 in. long; sepals and petals equal, the latter of a darker red; stamens included. Distinct from all the other long-flowered section in its small crowded leaves. A native of Peru, not yet introduced in a living state.

5. **Hartweg's Fuchsia** (*F. Hartwegi*, *Bth.*).—A distinct and pretty *Fuchsia* with oblong, lanceolate leaves, hairy beneath, from 2 in. to 1 in. long, opposite or whorled, and borne on relatively slender stalks about ½ in. long. Flowers very numerous, in terminal leafy panicles, very slender, about 1½ in. long; sepals very narrow, and spreading about ½ in. long; petals shorter, of a purplish-red; stamens scarcely exerted. This must be a very ornamental species, but, with the exception of the petals the colour has left the dried specimens, and there is no indication of it on Hartweg's label. Common in hedges near Huambra and elsewhere.

6. **Hairy-flowered Fuchsia** (*F. hirtella*, *H. B. K.*).—Very near *F. Hartwegi*, having, however, broader leaves and larger flowers, which are more conspicuously hairy than in any of the allied species, and in which the petals are as long as the sepals. A native of Colombia, not in cultivation.

7. **Wood Fuchsia** (*F. sylvatica*, *Bth.*).—A pretty species of the set having terminal leafy racemes of small flowers, in this species scarcely exceeding 1 in. in length. The leaves are more or less hairy and membranous. In general characteristics it approaches *F. hirtella* and *F. Hartwegi*, described more in detail, but it is less ornamental. Discovered by Hartweg in woods on the western declivity of Pichincha.

8. **Sessile-leaved Fuchsia** (*F. sessilifolia*, Bot. Mag., t. 5907).—A rather attractive species, although the flowers are small. Of rambling habit, with angular bright red stems, stalkless, glabrous, toothed leaves, 4 to 9 in. long, and arranged in whorls of four. Flowers very numerous, in leafy bracteate panicles; tube rose, passing into yellowish green at the base and in the sepals; petals deep red. Raised by Mr. Anderson-Henry from seeds received from Professor Jameson, of Quito, in 1865.

9. **Shaggy Fuchsia** (*F. ovalis*, *Rui. and Pavon*, Fl. Peruv., t. 324, A.; *F. pilosa*, *Piedding and Gardner's Sertum Pl.*, t. 27).—The plants figured in the two works quoted differ only in the shape of their leaves; and from the additional evidence of dried specimens, I have no doubt they are simply varieties of one species. It is true the figure in "Flora Peruviana" does not show the bristle-pointed (mucronate) sepals, but the description agrees well enough—a shaggy, hairy plant, even to the flowers, with oval or lanceolate-stalked leaves 3 in. to 5 in. long, and terminal leafy racemes of small crimson flowers. A Peruvian species not in European gardens, and of little ornamental merit.

10. **Shade-loving Fuchsia** (*F. umbrosa*, *Benth.*).—One of Hartweg's discoveries near Quito, possessing no particularly ornamental features. It belongs to the group with relatively short sepals and included stamens.

11. **Hoary Fuchsia** (*F. canescens*, *Bth.*).—A shrubby species 6 ft. to 10 ft. high, with the small oval or oblong leaves arranged in whorls of three or four; flowers on short stalks in the axils of the upper leaves 1½ in. to 2 in. long; petals broad, shorter than the ½-in. long, obtuse sepals, stamens included. Colour of the flowers not given. A native of Colombia and Peru. Not in cultivation.

12. **Saw-leaved Fuchsia** (*F. serratifolia*, Bot. Mag., t. 4174).—A tall-growing kind, the young shoots deep red, and the usually prominently toothed leaves, which are from 1 in. to 6 in. in length, usually in whorls of three or four, or sometimes opposite. Flowers



large, 2 in. to 3 in. long, singly on long stalks from the axils of the leaves, and very beautifully coloured. The broad tube, which is somewhat inflated at the base, is of a rich crimson, shading off gradually into rose-pink upwards and a yellowish green in the tips of the sepals, which overtop the broad, rounded petals. The latter are crimson with a white base; stamens protruding slightly beyond the petals. This is certainly one of the handsomest Fuchsias for greenhouse culture hitherto introduced. Mr. William Lobb was the first to send home living plants, which he collected in the mountains of Peru, and Messrs. Veitch were awarded a gilt medal for it by the Horticultural Society in 1845.

13. Lovely Fuchsia (*F. venusta*, *H.B.K.*, "Fl. des Serres," t. 538).—A tall-growing species, with the lanceolate nearly or quite entire, leaves usually in threes, and the orange-scarlet flowers pendent from the axils of the leaves on slender stalks 2 in. or more in length. Leaves thick and shining, resembling those of an *Allamanda*. Flowers about 3 in. in length, the wavy-margined petals longer than the very acute green-tipped sepals. Stamens scarcely projecting. This handsome plant is a native of New Granada, and was introduced into cultivation by Mr. Linden in 1847. It grows at an elevation of some 8000 ft., and consequently requires only a greenhouse temperature. In the herbarium at Kew there are several specimens named *F. cinnabarina*, a name of which I have found no publication. Two apparently distinct species are so named at Kew, and therefore I have no clue to the real thing beyond the fact that it must be closely allied to *F. venusta*. Most likely *F. cinnabarina* is a plant discovered by Mr. Linden in New Granada, or it was sent out by him as a new plant.

14. Warty-branched Fuchsia (*F. verrucosa*, *Hartweg*).—A small-flowered species, the young branches of which are usually more or less covered with wart-like excrescences. Leaves opposite, on quite short stalks, about 5 in. long, and very prominently veined on the under surface. Flowers less than 1 in. long, and solitary in the axils of the upper leaves. Native of New Granada, where Hartweg first detected it.

15. Rough-leaved Fuchsia (*F. scabriuscula*, *Benth.*).—A small-flowered species, native of Peru, of botanical interest only. It is remarkable for its very rough, wrinkled leaves.

16. Ayavaca Fuchsia (*F. ayavacensis*, *H.B.K.*).—An erect, shrubby species with lanceolate, hairy leaves, silvery beneath, 3 in. to 4 in., arranged in whorls of three. Flower-tube about 2 in. long, sepals and petals $\frac{1}{2}$ in., enclosing the stamens. I have only seen dried specimens, but the hairy flowers are described as becoming purple.

17. Club-shaped Fuchsia (*F. ampliata*, *Bth.*).—A branching, shrubby species, with hairy, opposite, or ternate lanceolate leaves, 2 in. to 4 in. in length, distantly and coarsely toothed, and very showy flowers with remarkably broad, rounded petals, and reflexed sepals. The tube is quite slender at the base for about $\frac{1}{2}$ in. and then abruptly widened. Judging from dried specimens only, this must be an exceedingly ornamental species. It is described as a shrub (apparently of compact growth) from 3 ft. to 10 ft. high, with a red calyx and scarlet corolla. It has a wide range in the mountains of Peru, growing at great altitudes up to 11,000 ft. Collectors should look after this.

18. Black-petaled Fuchsia (*F. caracasensis*, *Fielding and Gardner*, *Sertum Pl.*, t. 29; *F. nigricans*, "Fl. des Serres," t. 481).—A curious, though not ornamental, species, remarkable for its very dark purple, almost black, petals. It is of a somewhat loose, straggling habit, with wrinkled, hairy leaves 2 in. to 4 in. long, and arranged in threes. Flowers on short stalks in the axils of the upper leaves, about 1 in. long; sepals less than $\frac{1}{2}$ in. long, petals a little longer, stamens included. A native of New Granada and Peru; originally discovered by Moritz, and subsequently collected and introduced by Linden; but his name, although more appropriate, must give way to the earlier one of *caracasensis*.

19. Cinnabar-red Fuchsia (*F. petiolaris*, *H.B.K.*; *F. miniata*, *Planchon and Linden*, "Fl. des Serres," t. 754).—The plate quoted represents a showy plant with stout deep red shoots, smooth, obscurely-toothed, whorled leaves in fours, about 4 in. long, on deep red stalks, and pendent cinnabar-red flowers about 3 in. long. The sepals are tipped with green and slightly spreading, and the projecting stigma is spherical. I find no essential difference between Linden's plant and Humboldt's *petiolaris*, and the same author's *quindiensis* is probably a slightly hairy form of the same species. It is a profuse-flowering species from the Peruvian Andes.

20. Long-flowered Fuchsia (*F. longiflora*, *Benth.*).—A shrub, 5 ft. high, from the western declivity of the Andes of Quito, with thin, rough leaves, 4 in. to 6 in. long and axillary, solitary flowers, remarkable for the long, slender, slightly curved tube, and broad-

spreading petals; the tube is 3 in. or more in length, and the fully expanded flower about 2 in. in diameter; stamens not exceeding the petals in length. Discovered by Hartweg, who says it was very rare, and it has not been found by subsequent collectors. Judging from dried specimens alone, it appears to be a very ornamental plant; but, of course, one can say nothing as to its habit of growth. *F. macrostigma* of the same author differs only in its smaller flowers.

21. Purple-leaved Fuchsia (*F. spectabilis*, *Bot. Mag.*, t. 4375).—A noble species, with thick, succulent, dark purple shoots, broad leaves, 6 in. to 8 in. long, purple beneath, and dark green above, and half erect, finally pendulous flowers on short, stout stalks in the axils of the leaves. The flowers are nearly 3 in. long, and of a deep scarlet, slightly suffused with purple, stamens included; certainly one of the handsomest of the genus. It was collected by Mr. Lobb for Messrs. Veitch, who first exhibited it in 1848. He found it in shady woods in the Andes of Cuenca, growing about 2 ft. to 4 ft. high, and speaks of it as the loveliest of the lovely.

22. Loxa Fuchsia (*F. loxensis*, *Humboldt, Bonpland, and Kunth*, *Nova Gen. et Sp.*, vol. vi., t. 536).—A very dense, leafy shrub, nearly or quite glabrous in all its parts, with leaves 2 in. to 3 in. long. The flowers scarcely exceed 1 in., and have very short, erect sepals and petals; tube gradually wider upwards. This Peruvian species, from the neighbourhood of Loxa, was in cultivation at Kew in 1862. The leaves of the cultivated plant were purplish beneath, and the flowers deep red.

23. Large-petaled Fuchsia (*F. corollata*, *Bth.*).—One of the finest species of those not in cultivation—at least this is not in cultivation to my knowledge. It is a shrub 6 ft. to 8 ft. high, with coriaceous, ovate, or oblong leaves, remotely toothed and often deeply wrinkled. Flowers 2 in. to 2½ in. long, tube slender at the base, enlarged upwards; petals broad and nearly $\frac{3}{4}$ in. long, considerably overlapping the sepals, and of a very pretty, red colour. One of Hartweg's discoveries in the mountains of Colombia at an elevation of 10,000 ft. Collectors should look after this: the exact localities given are woods at Parace and on the ascent from Paramo to Guanacas, near Popayan. *F. macropetala* of Presl is unknown to me at present; it may belong here.

24. Curved-flowered Fuchsia (*F. curviflora*, *Bth.*).—Another of Hartweg's discoveries in Colombia in the Andes of Bogota at an elevation of 10,000 ft. A shrubby plant, 4 ft. to 5 ft. high, with small (about 1½ in. to 2 in. long) whorled leaves and solitary axillary flowers on short stalks. The slender flower-tube is more or less curved, and the white sepals contrast well with the deep red petals.

25. Toothed-leaved Fuchsia (*F. denticulata*, *Ruiz and Pavon*, *Fl. Peruv.*, t. 425).—According to the figure, this has coarsely toothed, strongly veined, stalked leaves, about 3 in. long, and flowers smaller, but otherwise not unlike those of *corollata* and *ampliata*. It is described as a very handsome plant, and bears a name signifying the same thing in the Indian vernacular.

26. Cross-branched Fuchsia (*F. decussata*, *Ruiz and Pavon*, *Fl. Peruv.*, t. 323, B., not of *Bot. Mag.*, t. 2507).—I know this only from the figure. It is described as a pretty, slender shrub, about 3 ft. high, with small leaves in threes, and scarlet and crimson flowers less than 1 in. long, and borne on slender stalks nearly twice their length; stamens projecting beyond the petals. Stated to grow abundantly at Muna. This appears to be allied to *F. magellanica* and the Brazilian species.

27. Original Fuchsia (*F. triphylla*, *Burmah's Edition of "Plumier's Plates of American Plants,"* t. 133; and perhaps *F. racemosa*, *Linnaeus*, "Encyclopædia," t. 282, fig. 1).—It has already been mentioned under *F. magellanica* where the first figure of a Fuchsia appeared, but this *F. triphylla* is the first plant figured under the name of Fuchsia. The figure, however, is so rude, that nobody, I believe, has been able to identify it with any living or dried plant. Possibly it is not a Fuchsia at all in the sense of the present application of the name, for it is represented as having only four stamens.

2.—Species inhabiting Brazil, characterized by having sepals as long or longer than the tube, and stamens projecting considerably beyond the petals.

28. Aiton's Fuchsia (*F. coccinea*, *Aiton*, *Bot. Mag.*, t. 5740, not *Bot. Mag.*, 97; *F. montana*, *Cambesede St. Hilaire*, *Fl. Bras.*, t. 135; *F. elegans*, *Salisb.* *Stirp. Rar.*, t. 7).—About 1788 both this and one of the varieties of *F. magellanica* were introduced; this soon became rare, and the other usurped its name, and is still widely, in fact almost universally, known to gardeners as *F. coccinea*. A few years ago Dr. Hooker found the true *F. coccinea* growing in the Botanic Garden at Oxford, and having identified it with authentic

specimens, he cleared up the synonymy of the two species. In a previous article in THE GARDEN I pretty fully explained all there is of interest to horticulturists concerning this species, consequently I may dismiss it here in a few words. I have seen no wild specimen from Brazil of *F. coccinea*, but I think there can be no doubt that the *F. montana* quoted above, of which, however, I have seen only the figure, is the same thing. *F. coccinea* is of graceful habit, and has slender, rosy-red flowers on long stalks. The leaves have a heart-shaped base, and are borne on short bristly-hairy stalks, usually three at each joint. Altogether it is so distinct from any of the varieties of *F. magellanica*, that it may be distinguished at a glance.

29. Cambessedé's Fuchsia (*F. pubescens*, *St. Hilaire*, Fl. Bras., vol. ii., t. 134) — Judging from the plate referred to, this is very near *F. coccinea*, differing in being of a more compact habit, in having smaller flowers and an almost spherical, not cylindrical, fruit.

30. Gardner's Fuchsia (*F. alpestris*, Bot. Mag., t. 3999). — A rampant-growing species with large leaves, 4 in. to 6 in. long, as well as the young stems, densely pubescent; the relatively small flowers usually borne singly in the axils of the leaves. It is of rambling habit, inhabiting moist bushy places on the Oregon Mountains at an elevation of about 5000 ft. Although introduced in 1842, it has not become widely dispersed in gardens, and as it is inferior to many others as an ornamental plant it will most likely continue rare. For a large greenhouse or conservatory it may be recommended, because it will quickly cover a large space with its ample foliage, and climb to a height of 20 ft. or 30 ft.

31. Aerial-rooting Fuchsia (*F. integrifolia*, *Camb.*; syns. — *F. alpinis*, *Camb.*; *F. pyriformis*, *Presl*; and *F. radicans*, Bot. Reg., 1844, t. 66). — The last is the name by which this plant is known in gardens. It is similar in habit and foliage to the last, freely throwing out clusters of roots from its branches in its native haunts. In this, the leaves are almost glabrous and the flowers are more richly coloured, the sepals being of a bright scarlet, and the relatively small petals violet-purple. For the same purposes as the last, this is, perhaps, to be preferred.

3.—Species inhabiting Chili and Patagonia.—These belong to two groups. *Fuchsia magellanica* has the long stamens of the Brazilian species, and the other two have very small flowers with short stamens approaching the small-flowered ones from Mexico.

32. Thilco Fuchsia (*F. magellanica*, *Lamarck*, *Eucy.*, t. 282; syn. *F. macrostema*, *Ruiz and Pavon*, Fl. Peruv., t. 321, fig. B.; *F. coccinea*, Bot. Mag., t. 97, not of Aiton). Under the Chilean native name of Thilco, Feuillée, in his Journal des Obs. Bot., &c., vol. iii., p. 61, t. 47 (1725), published the first description and figure of a Fuchsia. Although he represents his plant as having nine or ten stamens, there is no doubt that it is a true Fuchsia, and from the locality where it was gathered, 54° south latitude, it is most likely the present one. This view is strengthened by the fact that Ruiz and Pavon in the work quoted above give the same native name for their plant, which is also Chilean. It is a singular thing that this and the true *F. coccinea* should have so soon got confused. Aiton described his *F. coccinea* in 1789 ("Hortus Kewensis," vol. ii., p. 8), and it is stated there that it was sent to Kew from Chili by Captain Firth in 1788. In 1791 Salisbury ("Icones Stirpium Rariorum") figured the same thing under the name of *F. elegans*, as having been sent from Brazil by Vandelli about the year 1787. There are authentic specimens in existence which prove that the plant commonly known in gardens, and figured in several serials as *F. coccinea*, has nothing to do with the true plant. Aiton's plant is doubtless Brazilian, and there are very few species in Brazil. On the other hand there is no doubt that the plant figured in the Bot. Mag., t. 97 (1789), is the true *F. magellanica*, a much hardier Chilean species; indeed, all the really hardy varieties seem to belong to this one species. In a wild state, as well as under cultivation, it presents a wide range of variation in the size of its leaves and flowers, and in other particulars. I propose briefly describing a few of the more distinct, which have been figured in one or other of the periodicals. The plant represented in the Bot. Mag., t. 97, is of robust habit, has deep red or almost scarlet veins in the leaves, and rather large flowers, with broad scarlet sepals and purple petals; with the exception that the petals only slightly spread, this is equal to the best of the hardy varieties. *F. conica*, *Lindley*, Bot. Reg., t. 1062, is a very leafy variety, of compact habit, but not a very free bloomer. The calyx is scarlet, with a conical tube, about as long as the arching sepals, and the dark purple petals are nearly as long as the sepals. This was raised from seeds brought from Chili by Mr. Place, who presented them to the Horticultural Society in 1824; it may easily be distinguished by the very broad base of the calyx-tube, tapering upwards. *F. globosa*, *Lindley*, Bot.

Reg., t. 1556; is a familiar old variety, the flowers of which are quite globose in bud, a shape they retain for some time after they begin to expand on account of the petals continuing to adhere to the tips. The tube of the calyx is very short and almost spherical. This is an extremely profuse bloomer and the flowers are richly coloured. According to Mr. D. Don, it was raised by a Mr. Bunny from seed of *F. conica*. This still remains one of the best of the hardy Fuchsias. *F. gracilis*, *Lindley*, Bot. Reg., t. 817, syn. *F. decussata*, *Graham*, Bot. Mag., t. 2507. — A very distinct form from either of the foregoing, being of slender habit, and having larger and longer flowers borne on remarkably long, slender stalks. The young shoots are of a purplish-red, and the calyx is of a brighter scarlet, and the corolla has a greater infusion of red than either of the varieties described above. It is stated that this Fuchsia was raised from Mexican seed in the Botanic Garden at Edinburgh in 1822; but it does not agree with any of the Mexican forms, and it is equally as hardy as any of the Magellanic group. A writer in London's "Gardeners' Magazine," in 1832, states:—"I have in my garden (at Whitby) at the present time in the open ground a plant of *Fuchsia gracilis* nearly 7 ft. high, and from 12 ft. to 15 ft. in circumference, and loaded with flowers. It has been planted out three years, and last winter it was not cut down at all. My garden is in an open situation, three quarters of a mile from the sea, and about 120 ft. above its level." Pity it is that these beautiful plants are so little grown now. In the Bot. Reg., t. 1052, there is a figure of a Fuchsia called *F. gracilis*, var. *multiflora*, said to have been raised from Chilean seeds presented to the Horticultural Society by Mr. Place in 1824. It is a very free-flowering kind, with shorter, darker crimson flowers than *gracilis*. *F. tenella* is a seedling variety of *F. gracilis*. One might go on enumerating the varieties of this group, but it would be of little practical use and occupy too much space. However, being the only hardy set, it may be worth while mentioning one or two others. *F. discolor*, *Lindley*, Bot. Reg., t. 1805, is a dwarf variety, producing a profusion of small flowers with spreading sepals. It was better known in gardens as *F. Loweii*, and was raised by Mr. Lowe from seeds procured by Mr. Anderson, who accompanied Captain King. It was found at Port Famine, in the Straits of Magellan, the most southerly habitat of any of the Fuchsias. It is stated to be the hardiest of all, not being injured even by the winters of Scotland; but this probably has reference to the milder parts only; at all events, there can be no doubt of its hardness in any part if treated as an herbaceous plant. Whether this particular variety is still to be found in gardens I cannot say. A dwarf, slender variety is cultivated at Kew under the name of *pumila*: this is of almost trailing habit. *F. racemosa* of *Lamarck's* "Encyclopædia," t. 282, should probably be referred here, and perhaps also *F. multiflora* of Willdenow. Finally, I have to mention *F. recurvata*, Bot. Mag., t. 3521, a large-leaved, large-flowered variety remarkable for the length of the flower-stalks and the recurved sepals. I had almost forgotten to mention that *F. chonotica* and *F. araucana*, lately published by Philippi, can only be regarded as slight varieties of *magellanica*; and among the best varieties now commonly met with I ought to mention *corallina* and *Riccartoni*. *F. virgata* of Sweet should also be referred here.

33. Box Thorn-like Fuchsia (*F. lycioides*, *Andrews'* "Botanists' Repository," t. 120, syn. *F. rosea*, *Ruiz and Pavon*). — This bears a strong resemblance to *Lycium afrum* both in foliage and its small scattered flowers. As in *F. spinosa*, the woody leaf-stalks persist, and the flowers, judging from the plate quoted above and Bot. Mag., t. 1024, vary considerably in size and colour. Possibly *F. spinosa* is only a form of this growing in arid places; but none of the forms are remarkable for beauty. *F. lycioides* is interesting as being one of the first species cultivated in Europe, and having been introduced by Mr. Archibald Menzies from Chili before 1796. It first flowered in this country in the King's Garden at Kew some time during the year named. *F. parvidora*, *Lindley*, Bot. Reg., t. 1048, seems to be a small-flowered variety with long-stalked leaves. It is stated under the plate quoted that it is a native of Mexico; but this may be wrong. In fact, I have seen nothing at all like it among the numerous Mexican specimens that have passed through my hands. Seeds were presented to the Horticultural Society in 1824 by the Right Hon. George Canning, and it flowered in the Chiswick Garden for the first time in an open border in 1826.

34. Spiny Fuchsia (*F. spinosa*, *Presl*, "Reliquie Hænkearne," t. 51). — In habit, foliage, and flowers, this comes very near *F. lycioides*, but the petals are much smaller than those of the latter. It has thick, warty, often spiny branches, very small, appressed leaves from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. long, on short, thick, hardened stalks, which persist after the blade has fallen away, and red flowers about $\frac{1}{2}$ in. long. The stamens are no longer than the minute petals, but the style projects considerably in the specimens I have seen. A native of Chili presenting no specially ornamental features.

4.—Species inhabiting Mexico and Guatemala. These include the very small-flowered Fuchsias, in which the stamens are included of which *F. microphylla* is the type; a small group, of which *F. splendens* is typical; and the singular *F. arborescens*.

35. Miniature Fuchsia (*F. microphylla*, Bot. Reg., 1269).—Although this will in time grow to a height of several feet, if supported, it is, as usually cultivated, a perfect miniature Fuchsia, forming bushy plants 9 in. to 18 in. high, covered with a profusion of small, deep red flowers. It is, perhaps, the most familiar of the group to which it belongs, and therefore a detailed description would be unnecessary, were it not that its less ornamental allies often get into gardens under the same name. This possesses certain advantages which entitle it to precedence on all occasions. In the first place it is evergreen, and the smooth leaves usually less than $\frac{1}{2}$ in. long, and borne on very short stalks, are elegantly toothed on the margin, and closely arranged on the branches. Farther, the flowers, though smaller, are more abundant and of a richer colour. *F. thymifolia* frequently represents this species, and although a pretty plant, it is far inferior to the present. It has soft, minutely hairy leaves, quite entire on the margin, and borne upon relatively long stalks. *F. microphylla* was first discovered by Humboldt and Bonpland on the volcanic mountain Jorullo, Mexico, and later travellers have collected it in widely distant mountain regions of Mexico and Guatemala. On the peak of Orizaba it ascends to an altitude of 10,000 ft. Introduced into our gardens about the year 1838, and figured in most of the garden periodicals of that date. There are several garden varieties, as major, reflexa, and Millezii. This is sometimes grown under the name of pendula. *F. Notarisi*, *Lehmann*, of which I have seen no specimens, is described as differing widely in the shape of its smaller flowers, the sepals and petals spreading at right angles to the tube. *F. gracilis* of Mocino and Sessé is the same as *microphylla*.

36. Thyme-leaved Fuchsia (*F. thymifolia*, Bot. Reg., t. 1281).—This was also discovered by Humboldt and Bonpland, and was introduced about the same date as the last. Besides the foliage and other particulars mentioned under the last, this species differs from its closer allies in having a fannel-shaped (not cylindrical) tube and larger-spreading sepals and petals; but I am not quite sure how far this is a reliable character, for the sexes are more or less separated here, and perhaps some of the individuals may be wholly male or female, and the flowers of the two sexes different in size and shape. Thus *F. parviflora*, syn. *F. enclandra*, has quite similar foliage with much smaller flowers usually, though they appear to vary very much in this respect. But this group requires carefully studying before one can attempt to define the species. In the true *parviflora* the flowers appear to be always cylindrical as in *F. microphylla*.

37. Four-fingered Fuchsia (*F. tetradactyla*, *Lindley*).—The name has reference to the large star-shaped stigma divided into four fleshy finger-like rays which project beyond the petals. It is nearly allied to *thymifolia* and *cylindracea*, but less ornamental, the deep rose-coloured flowers being only about $\frac{1}{2}$ in. long; Dr. Lindley describes it as having a tuberous root-stock: a native of Guatemala, introduced in 1816 by G. U. Skinner. *F. acynifolia* of Scheidweiler, stated to be a Mexican species of this group, is unknown to me, and described in a book which I have not been able to consult.

38. Barker's Fuchsia (*F. cylindracea*, *Lindley*, Bot. Reg., 1838, t. 66).—A pretty species, resembling a small-flowered Cuphea. It belongs to a small group of Mexican and Central American species, which includes the two next, characterized by having small cylindrical flowers, with very short tooth-like sepals, very small petals, and stamens included in the tube. Another peculiarity of this particular group is that the sexes are separated as in some of the New Zealand species. Dr. Lindley states that some plants are wholly male and others female, but rudimentary stamens are present in the female flowers, and a short style in the male flowers, with foliage very much like *F. thymifolia*, though rather larger. This has in the male plant dark red flowers slightly tipped with yellowish-green, about $\frac{1}{2}$ in. long, and borne on slender stalks 1 in. to 2 in. in length. The female flowers are little more than half as large. This attractive Fuchsia was first raised in the Horticultural Society's garden from Mexican seeds presented by G. Barker, of Birmingham.

39. Rod-branched Fuchsia (*F. bacillaris*, *Lindley*, Bot. Reg. t. 1480).—A very pretty and distinct species of the small-flowered Mexican group, with long, slender, smooth branches, perfectly glabrous, ovate or lanceolate leaves, and small rosy-red flowers, remarkable for their relatively large-spreading petals and small narrow sepals. The leaves are from 1 in. to 2 in. long, and the slenderly-stalked flowers are about $\frac{1}{2}$ in. in diameter. A native of Mexico, introduced in 1829, and first flowered in the garden of the Horticultural Society.

40. The Glowing Fuchsia (*F. fulgens*, Bot. Mag., t. 3801).—Of the handsome group to which this species belongs this is the only one that is now in general cultivation, and it fully merits this exceptional favour. It is not so brilliantly coloured as some of its congeners, but it is a free bloomer and flourishes in the most unskilful hands. The foliage of this, though it has been called coarse, is the boldest of any species in the genus, and this, coupled with the terminal, pendent racemes of very long, slender, vermilion-red flowers, tipped with green, affords characters by which it may be easily distinguished from its allies. Treated as an herbaceous plant it annually throws up from its tuberous root-stalk stout, succulent shoots, clothed with large, soft, heart-shaped leaves, and terminating in racemes of flowers which continue elongating and producing new flowers until late in the autumn. There is no doubt that this species played an important part in the early hybrid Fuchsias. It was introduced about 1836, and it was not until after that date that any real novelties in the so-called hybrids appear: but I have not sufficient space to enter into that part of the subject here. *F. fulgens* is a native of the mountains of Mexico, and was introduced by Hartweg.

41. Heart-leaved Fuchsia (*F. cordifolia*, Bot. Reg. 1841, t. 70).—Very near *F. splendens*, but having much larger, more conspicuously hairy flowers of a darker crimson on the tube, and with less yellow on the sepals; but it varies in the size and brilliancy of its flowers according to its cultivation. In the Bot. Reg., quoted above, they are represented as 2 in. long, and in Paxton's "Magazine of Botany," vol. ix., p. 99, quite 2 $\frac{1}{2}$ in. long. Another character by which it may be recognised is furnished by the scarcely projecting stamens. This also was introduced by Hartweg, who collected it in Guatemala, at an elevation of 10,000 ft., about 1840. In the collection of drawings at Kew there is an unpublished coloured figure of a Fuchsia, named *F. Kermesina*; it is very near *F. cordifolia*, but the leaves are wedge-shaped at the base, and the flower-stalks are much shorter.

42. Hartweg's Fuchsia (*F. splendens*, Bot. Mag., t. 4082).—This very striking plant was raised in the Horticultural Society's garden from seeds collected by Hartweg on Mount Tototepaque, in Mexico, at an elevation of 10,000 ft. It is of shrubby habit, and has cordate or ovate softly hairy leaves on long stalks, and axillary flowers on long slender stalks. The calyx-tube is broad and short, and of a vivid scarlet, while the short and almost erect sepals and petals are yellow and green; and the yellow stamens project $\frac{1}{2}$ in. or more beyond the mouth of the tube. Under proper treatment this flowers freely, but it should be allowed little pot-room, and it requires a cool climate.

43. Laurel-leaved Fuchsia (*F. arborescens*, Bot. Mag., t. 2620).—This is so different in appearance from all other Fuchsias, that nobody would suspect its affinity before having examined the structure of its flowers. It reminds one more of a small-flowered *Ixora* or some allied plant than a Fuchsia; it is described as a fine tree, and is a native of the lofty mountains of Mexico and Guatemala. The wild specimens exhibit a considerable variety in the size, degree of hairiness, and margin of the leaves, and under cultivation the leaves are as large, though not so thick, as those of the common Laurel, being sometimes as much as 8 in. long. In the cultivated plants they are nearly or quite smooth, with scarcely any trace of teeth on the margin. The flowers are almost as small as those of *F. microphylla*, but they are slenderer, and the sepals and petals, which are nearly equal in size and uniformly spreading, are relatively long and narrow; what they lack in size, however, is made up in number, and they are borne in erect, much-branched, terminal panicles, the individual flowers also being erect. It was introduced into this country by several different people about 1823, and appears to have first flowered at Bury Hill, then the residence of Robert Barclay, in 1825. Though it will not bear our severest winters, the following extract from London's "Gardeners' Magazine" furnishes evidence of its hardiness and beauty in one of the milder counties of England:—"*Fuchsia arborescens*, a native of Mexico, has attracted the observation of many scientific men here. It is 22 ft. high, with a head 40 ft. in circumference, the trunk at the surface of the soil 16 in. in girth and 3 in. from the ground; where it begins to branch off, 14 in. It had fifty trusses of flowers on it last August, and continued flowering in succession until the end of December. The trusses were 14 in. in diameter and 1 ft. long. I bought this plant of Mr. Veitch, of Killerton Nursery, six years ago, and I grow it in a mixture of loam and peat."—JAMES HARRISON, *Bridehead House, Somersetshire*, Feb. 19, 1836. If this fine Fuchsia would flourish and make so fine a display out-of-doors forty years ago it must be worthy of the consideration of the present generation of gardeners. In the original variety the flowers are of a rosy-pink, the petals slightly tinged with purple. But a few years ago some Continental nurseryman sent out a distinct variety under the name of *F. syringeflora*, a not inapprop-

private name, judging from a coloured plate in the "Revue Horticole," 1873, p. 311. The flowers are of a reddish-lilac hue and in very dense clusters, not unlike those of some of the varieties of Lilac. *F. aucana* is synonymous with *F. arborescens*.

44. **Skinner's Fuchsia** (*F. paniculata*, *Lindley*, *Gard. Chron.*, 1856, p. 301).—This I have not seen, but from Schiede's specimen referred to by Dr. Lindley, I should regard it as nothing more than a variety of *F. arborescens*, though quite distinct from a horticultural point of view. It is said to differ from *arborescens* in its pyramidal inflorescence, much smaller flowers, and small, obovate, or ovate-lanceolate leaves. The flowers are wine-red, and in the mass pretty. It was exhibited by Messrs. Veitch at a meeting of the Horticultural Society in April, 1856; they raised it from seeds sent from Guatemala by Mr. G. U. Skinner.

American Species Destitute of Petals.

Unlike the New Zealand species destitute of petals, these have large and usually very showy flowers; indeed, some of them have the largest flowers in the genus. They are of epiphytal habit, growing upon rocks and trees, and some of them produce their flowers on naked branches before the leaves appear, or before they are fully grown out. Two of this section have been in cultivation, but, possibly through their epiphytal nature not being understood, they have been lost. They are all natives of mountains of the north-western part of South America. Until last year only two species had been described; to these I added four, two of which may possibly be extreme forms of the original *F. apetala*.

45. **Lobb's Fuchsia** (*F. macrantha*, *Bot. Mag.*, t. 4233).—A magnificent Fuchsia, first discovered by Mr. Mathews, climbing on trees in the lofty mountains of Andimarca, Peru; but to Mr. William Lobb, while collecting for Messrs. Veitch, the honour is due of having introduced living plants into this country. He found it in woods in the Colombian Andes, at an elevation of about 5000 ft., and Messrs. Veitch exhibited a flowering plant of it at the Horticultural Society's rooms on April 7, 1846. It has short, thick, warty branches, and large, ovate, softly hairy leaves. In the wild specimens, at least, the pendent flowers are borne in clusters near the ends of the branches; in luxuriant specimens they are almost 6 in. long, the tube constituting nearly the whole length. The sepals are only about $\frac{1}{2}$ in. long, and are erect, enclosing the stamens. The colour is a soft rosy-red, passing into yellow and green on the edges and tips of the petals. This fine species is described as a free bloomer, scarcely exceeding 2 ft. high under cultivation. It is to be hoped that somebody will re-introduce it.

46. **Pavon's Fuchsia** (*F. apetala*, *Ruiz and Pavon*, *Fl. Peruv.*, iii., t. 322, fig. B).—The first apetalous Fuchsia described, and although the flowers are not so large as those of *F. macrantha*, it is a very handsome species. It differs mainly from the last in its smaller flowers with relatively longer sepals, in its slightly protruding stamens, and in its larger leaves. A native of Peru and Colombia, formerly, if not still, in cultivation on the Continent.

47. **Jameson's Fuchsia** (*F. insignis*, *Hemsley*, "Journal of Botany," 1876).—Perhaps the showiest of this section, though it has the drawback of being quite leafless during the flowering season. The brilliant scarlet flowers are clustered at the ends of the branches, and they are nearly as large as those of *F. macrantha*, but differing materially in the spreading sepals being more than half as long as the tube. Professor Jameson first discovered it in 1836 in the province of Alansi, Ecuador, at an elevation of 10,000 ft.; and Spruce subsequently detected it on the western side of Mount Azuay. It climbs over trees, attaching itself by roots like Ivy. Not introduced.

48. **Lechler's Fuchsia** (*F. hirsuta*, *Hemsley*, "Journal of Botany," 1876).—This may be no more than a small-flowered variety or state of *F. apetala* with very hairy flowers. Lechler found it growing on moist, shady rocks in Peru.

49. **Linden's Apetalous Fuchsia** (*F. membranacea*, *Hemsley*, "Journal of Botany," 1876). This and the next differ from the preceding species of this section in having fully developed leaves at the time of flowering, and in the flowers being borne singly or in pairs in the axils of the leaves all along the branches. A very distinct Fuchsia, having membranaceous leaves 2 in. to 2 $\frac{1}{2}$ in. long, borne on slender stalks. The scarlet flowers are about 2 in. long, on slender stalks of nearly the same length, and the erect sepals considerably overtop the stamens. Discovered in Caracas by Mr. J. Linden. I have seen only dried specimens.

50. **Willow-leaved Fuchsia** (*F. salicifolia*, *Hemsley*, "Journal of Botany," 1876).—Also a very distinct species, characterised by long, slender, straight branches, shortly-stalked, Willow-like leaves, and shortly-stalked flowers about 3 in. long. Discovered by the late Mr.

Pearce when he was collecting for Messrs. Veitch. He describes it as an epiphyte with pink flowers, growing on Mount Sandillani, in Peru, at an elevation of 7000 ft. to 8000 ft.

New Zealand Species.

This group comprises three or four species, very distinct from all those native of America. In common with the petalless species from the latter country they have alternate leaves; and they also have no petals, or only very small ones. The first is either a rambling shrub or medium-sized tree, according to the locality in which it grows; and the others are small dwarf or trailing shrubs, with slender branches and small leaves.

51. **Trailing Fuchsia** (*F. procumbens*, *R. Conn.*, *Bot. Mag.*, t. 6139; *F. Kirki*, *Hooker*, "Icones," t. 1083, male plant).—A trailing plant, with very slender stems, often several feet long, small roundish leaves, seldom exceeding $\frac{1}{2}$ in. in diameter, and borne on relatively very long and very slender stalks, and small petalless flowers, less than $\frac{1}{4}$ in. long. From the habit of the plant the flowers have acquired an erect position. Although they are so small they are attractive on account of their colouring. The calyx-tube is orange-yellow, passing to green on the outside of the sepals, which are reddish-purple on their upper surface, and turned back in the expanded flowers, and closely appressed against the tube. In this species the sexes are separated, though the male flowers contain imperfect female organs, and the female flowers imperfect stamens; and the blue-anthered stamens vary in length in different plants. Dr. Hooker states that this was introduced into England many years ago by the late Mr. Williams, of Hendon. It was re-introduced about three years ago by Mr. J. Blackett, of Egham, but being a very modest little thing compared with its brilliant kindred which embellish our conservatories, it is only to be found in the gardens of the curious. Its home is on the sandy sea-shores of the warmer parts of New Zealand, where its branches become hard and wiry. I have somewhere seen a statement to the effect that this is hardy in this country, but that means probably that it will survive a mild winter in an unusually favourable situation. I have ascertained that it was cultivated in this country by the gentleman mentioned above in, or previous to 1842.

52. **Colenso's Fuchsia** (*F. Colensoi*, *Hooker*).—This is intermediate between *F. excorticata* and *F. procumbens*, having the flowers of the former and the habit and foliage of the latter. It is not in cultivation, and not yet very well defined; it may be a hybrid between the two species named, or there may be two species mixed up together under this name at Kew. Without fresh specimens it is almost impossible to decide, particularly as many New Zealand plants show a tendency to variation; this wide range of variation is surprising and perplexing to a botanist acquainted only with the relatively constant species forming the vegetation of this country.

53. **New Zealand Tree Fuchsia** (*F. excorticata*, *Linnaeus*, *Bot. Reg.*, t. 857).—According to Sweet, this singular species was introduced in 1821, but a figure of it did not appear till 1824. The figure in the "Botanical Register" quoted above is an excellent representation of the plant. It appears to have been first raised in Mr. Colvill's nursery from seed collected in New Zealand by a Mr. Richardson. If Sweet's date be correct, this was the third or fourth species introduced into European gardens, but it was quickly followed by *F. arborescens* and several others. In favourable situations *F. excorticata* exceeds all others of its genus in size, sometimes forming a trunk 3 ft. in diameter. It varies, however, very much in size, and the usually rather thick branches and trunk are clothed with a ragged, papery bark. The alternate leaves vary in wild specimens from $1\frac{1}{2}$ in. to 3 $\frac{1}{2}$ in. in length, dark green above, and silvery or tawny beneath. The flowers, which are only about $1\frac{1}{2}$ in. long, are very distinct in shape, and change from a yellowish colour tinged with red when the first open to a deep red. At the base the calyx-tube has a spherical expansion, above which it is constricted, and thence it rapidly widens upwards, being relatively very broad at the mouth. The petals are dark purple, less than $\frac{1}{4}$ in. long, or about a third of the length of the spreading sepals. The stamens scarcely exceed the sepals, and have blue anthers on a level with the large globular yellow stigma. What part this very distinct species has played in the parentage of the first hybrids and their descendants it is difficult to say. For my own part, I think it has not hybridized with any of the American species, as I can find no mention of it in connection with any of the numerous early crosses. Donald Beaton, however, in London's "Gardeners' Magazine" for 1835, states that *F. excorticata*, impregnated with the pollen of either *conica* or *globosa*, will produce fac-similes of *F. discolor* or the Port Famine Fuchsia. Of course, without trying the experiment, it would be going too far to assert that this is impossible, but it seems incredible. The following sentence, taken from the same place, is equally open

to doubt; in fact, it is not at all certain that hybridism between distinct species has been so common among Fuchsias as is generally supposed:—"F. conica, gracilis, tenella, virgata, and many more varieties, or perhaps species, may be originated by fertilizing the stigmas of coccinea with the pollen of F. arborescens. This I have proved three times over." Most likely cross-impregnation was not effected, and the result simply natural variation.

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<i>bacillaris</i> , 39	<i>integrifolia</i> , 31	<i>racemosa</i> , 27
<i>boliviana</i> , 1	<i>kermesina</i> , 41	<i>radicans</i> , 51
<i>canescens</i> , 11	<i>Kirki</i> , 51	<i>recurva</i> , 32
<i>caracasensis</i> , 18	<i>longiflora</i> , 20	<i>Riccartoni</i> , 32
<i>chionotica</i> , 32	<i>Lowei</i> , 32	<i>rosea</i> , 33
<i>cinnabarinata</i> , 13	<i>loxensis</i> , 22	<i>salicifolia</i> , 50
<i>coccinea</i> , 28	<i>lycioides</i> , 33	<i>scabrisculea</i> , 15
<i>coccinea</i> , 32	<i>maerantha</i> , 15	<i>serratifolia</i> , 12
<i>Colensoi</i> , 52	<i>macro-petala</i> , 23	<i>sessilifolia</i> , 8
<i>confertifolia</i> , 1	<i>microstema</i> , 32	<i>simplicicaulis</i> , 3
<i>conica</i> , 32	<i>macrostigma</i> , 20	<i>spectabilis</i> , 21
<i>corallina</i> , 32	<i>magellanica</i> , 32	<i>spinosa</i> , 34
<i>cordifolia</i> , 41	<i>membranacea</i> , 49	<i>splendens</i> , 42
<i>corollata</i> , 23	<i>microphylla</i> , 35	<i>sylvatica</i> , 7
<i>corymbiflora</i> , 2	<i>ovata</i> , 19	<i>syncephala</i> , 43
<i>curviflora</i> , 24	<i>ovata</i> , 28	<i>tenella</i> , 32
<i>cyliandra</i> , 38	<i>multiflora</i> , 32	<i>tetradactyla</i> , 37
<i>decussata</i> , 26	<i>nigricans</i> , 18	<i>thymifolia</i> , 36
<i>decussata</i> , 32	<i>Notarisii</i> , 35	<i>triphylia</i> , 27
<i>denticulata</i> , 25	<i>nutans</i> , 35	<i>umbrosa</i> , 10
<i>dependens</i> , 2	<i>ovalis</i> , 9	<i>venusta</i> , 13
<i>discolor</i> , 32	<i>paniculata</i> , 44	<i>verrucosa</i> , 11
<i>elegans</i> , 28	<i>parviflora</i> , 36	<i>virgata</i> , 32
<i>enclaudro</i> , 36	<i>parviflora</i> , 33	

UNDERGROUND HOT-WATER PIPES.

I DOUBT if there be any greater waste connected with horticulture than that of heating by the plan very often adopted of uniting several ranges of houses to one boiler. There can be no question as to capability of providing sufficient heat, and as long as the whole apparatus is intact all goes well, but in proportion as the area to be heated is enlarged, so are the chances of failure and breakdowns multiplied. To give the one-boiler system anything like a fair trial the houses must be grouped or concentrated as closely as possible, and even then a vast amount of heat must be lost in its transit to the required points, as the branches from the main pipes must expend their greatest heat in warming underground chambers or drains, while of necessity the returns must be lower, and in many cases liable to be soon eaten through by rust from combined heat and moisture. To guard against these evil effects as far as possible, all pipes that are sunk below the ground-level should be kept as clear as possible of all substances likely to create rust, as should also the pipes for atmospheric heat. I have just been taking out some connecting pipes that have been eaten completely away by being left in contact with the mortar and sand, and so rapid is the decay, that although only fixed fifteen years ago they are now completely useless. It is not only absolutely necessary to guard the main flow and return from anything coming in contact with them, but all stop valves, sockets, and, above all, connecting pipes, should be kept quite clear of the brickwork, merely resting on piers directly on tile or slate, and not bedded in mortar on any consideration. Some soils are doubtless more destructive to iron than others, but it is best to be on the safe side, and to guard against rust in the only effectual way by allowing a free circulation of air to surround all the pipes whether above or below ground. There should also be ample means of access by gratings to examine all underground pipes frequently, so as to remedy any defects

without the labour and annoyance of excavating, &c., where the pipes are buried; for, however skilfully the work may have been performed, a defect may exist in apparently the soundest socket or pipe, and when it does give way (as is usually the case in severe weather, when the apparatus is being heavily taxed), there are few things connected with a gardener's art against which he is so powerless to contend as a stoppage of heating apparatus, and the more complicated and extensive it is the greater the liability of injury, and also of the difficulty of rectifying it. Cast iron is by no means a desirable substance on which to operate, even when experienced workmen are at hand, and although makeshifts are obliged to be extemporized in exceptional cases, the only real remedy for a fracture is to get an entirely new casting of similar patterns. From my own experience I should prefer a medium-sized boiler of sufficient power to heat one, or, at the most, two ranges of houses, and the simpler in design the better, for, however well complicated apparatuses may look on paper, it is quite another matter when they are subjected to every-day use; it is only by actual experience that the defects of even the best arranged apparatus that ever was erected become apparent.

Henham. JAMES GROOM.

THE CATAWISSA TREE ONION.

THIS is a perennial and prolificus Onion, that is to say, like the Potato Onion, it produces small stem bulbs, which if planted either in spring or autumn throw out the first year



The Catawissa Tree Onion.

two or three stems, which in due course reproduce bulblets. These, though scarcely matured, develop into new stems crowned by new bulblets, which frequently produce a third set of shoots, the whole rising to the height of from 2 ft. to 2½ ft. After two years they stop growing, and the trusses become very vigorous, ranging in number from twenty to thirty, each with from ten to twenty bulblets, but less frequently throwing out a second batch of stems. The flavour of the bulbs and shoots is very similar to that of the common Onion; the bulblets may also be used after stripping them of the outside skin, which is very hard. Of the utility and productiveness of this variety Messrs. Vilmorin speak in favourable terms. M.

Grapes at Montreal.—The report of the Fruit Committee of the Montreal Horticultural Society gives the following rules for the management of Grapes in that climate:—1st. Ground thoroughly underdrained. 2nd. Well pulverized garden soil; the richer the better. 3rd. A southern exposure, where the full benefit of the morning sun may be had. Fruit will ripen at least a week sooner if grown against a wall or fence. Protection by means of a belt of trees or fence, against the cold north and east winds, is a great safeguard in our northern climate. 4th. A covering of from 1 in. to 6 in. of earth or other material, in winter. 5th. Constant but not severe pruning; a certain amount of foliage being requisite to bring fruit to perfection.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Azaleas.—I know of no plants more suitable for amateurs to grow than these, whether the object be for decorating the conservatory or for using the flowers in a cut state. Those amateurs who have the means at command of giving them whilst young the treatment hereafter recommended will find that by so doing they will increase in size much quicker than when grown in a colder atmosphere, with the additional advantage that plants grown quickly are most likely to live and flower in a satisfactory manner. In autumn select young, healthy free-growing plants in, let us say, 6-in. pots; let them be wintered in a temperature of from 45° to 50°; they will need shifting about the beginning of March into 9-in. pots, the soil must consist of good fibrous peat, broken into pieces about the size of *Acerus*, adding enough sand to keep it in right condition; after this re-potting the house must be kept a little close. During April and May the night temperature should be from 60° to 65°, and the day temperature 70° to 75°; syringing overhead in the afternoons. Unless in the case of any shoots that are stronger than the rest do not stop them, as a good foundation for the future specimen is what is now wanted. The night temperature during June, July, August, and September, should be from 65° to 70°, and from 75° to 80° in the day. Any blooms they set must be nipped out, and a second growth will be made. By the end of September admit more air, discontinue syringing the plants, and reduce the heat 10° during both day and night. Winter them in the same temperature as mentioned previously. By the beginning of March they should have more heat, and be syringed each afternoon as last spring. When the roots begin to move shift them into 12-in. or 13-in. pots, using soil similar to that previously recommended, and pressing it down firmly. Through the summer treat as last year; about midsummer most of them will set bloom, which should be removed; they will then make a second growth, and by the end of September or middle of October a good crop of buds will be set. A month before this time disperse with the syringing, give more air, let the atmosphere be drier, but do not reduce the temperature too much. Any growths that may show a disposition to outgrow the rest ought to be tied down with their points near the bottom of the plant. Winter as previously; they will bloom freely, but as at the same time they will be full of young growth, they must not be placed in a dry atmosphere or subjected to draughts. If they be pushed on as before and in the same temperature, two growths will again be made. This season do not pot them till the flowering is over; their general management may be the same as previously recommended. As it will now not be advisable for them to make above one growth in a season, they will of course need to be wintered in a cooler temperature—from 36° to 42° by night will do. Their worst insect enemy is thrips, for which the best remedy is washing with Tobacco-water, to each gallon of which has been added 1 oz. of Gishurst; do not wash the mixture off, but let it dry on; fumigation injures the leaves more or less.

Celery.—Some seed may now be sown in pans or boxes in a little warmth; the soil used should be of a fine sandy description, so that when the plants are ready for pricking out, this can be done without injuring their roots, which would occur if it were lumpy and strong, thereby causing a check.

Spring Cabbages.—Where there may not have been enough spring Cabbages planted, the deficiency can be made up by planting those that were in the autumn pricked out in a reserve bed.

Strawberry Beds.—If these have not had their winter dressing, they should be attended to at once. It is better in land that is heavy and retentive to fork over the ground between the rows a few inches deep, not disturbing the roots; where this is not done, and the soil is of the above description, it gets made so solid by the trampling which is unavoidable in gathering the fruit that the rains cannot penetrate, and if weeds be plentiful, they must be got rid of by forking in, for too much soil is lost, and the roots bared if they are hoed up and raked off. However, where good, clean cultivation is practised, there will not be many weeds, and, with the exception of just loosening the top, so as to let the rains get to the roots, the less digging there is in ground occupied by Strawberries the better. Always use the fork where shallow stirring of the soil is requisite.

Peas that were sown in the autumn and are aboveground will derive benefit from the addition of 2 in. of dry sandy soil: let this be done by hand, being careful not to injure or break their stems. A sprinkling of fine ashes on the top will likewise be beneficial, as the ashes will offer a great obstacle to the movements of slugs. Stake the Peas with a few short sticks and thread some white cotton about them to scare away sparrows. To protect them from the wind some branches of Spruce or any material of a similar description may be

put in the ground at a short distance away from them, but on no account must they be near enough to make the Peas draw up in a weakly manner. Where the situation is cold and late, and not favourable for the early sowing of Peas out-of-doors, a gain of a fortnight may be effected by sowing in a frame, pit, or in a cold Vinery. There is no better way of proceeding than to use strips of turf 6 in. wide and about 4 in. thick, placing them on boards with the Grass side downwards. Cut a channel down the centre of the turves about 2 in. deep; here sow the Peas and cover with fine soil. They will quickly begin to grow, and in March can be planted in shallow trenches.

Lawns and Walks.—Let all worm-casts be kept swept from lawns and the Grass rolled. Any walks that want re-gravelling should be attended to at once, so as to afford time for the new gravel to set previous to dry weather; this will be found to effect a great saving in the labour of rolling, and the walks will also be pleasanter to the feet during summer.

Roses, through the extreme mildness of the weather, have made young growths very early, but they must not by any means be pruned yet, as that would cause the eyes that are further down the shoots and yet dormant, to push forward, and they would be almost sure to be killed later in the season.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

January 29.—Finishing the digging of vacant ground. Making ready to sow a second piece of Broad Beans (Early Long-pod). Digging flower borders and among standard Roses. Sowing Dutch Turnips, French Beans for first Bean-house, second Peas (consisting of Laxton's Alpha, Little Gem, and Advanceer), and rows of Spinach between the Peas. Still potting Cattleyas; also cuttings of *Calceolarias*. Shifting Hollyhocks into 6-in. pots. Potting some young *Vallotas*. Putting a few scented *Verbenas* into heat for cuttings; putting in Red and Black Currant and Gooseberry cuttings. Planting Potatoes under wall and in front of Orchid-houses, and sowing a few Radishes among them. Planting a third pit with potted Potatoes. Beginning to layer Carnations for flowering in winter. Putting in 100 more Keen's Seedling Strawberry plants to force. Wrapping *Ageratum* in Moss and putting them in boxes in heat so as to be able to divide them at bedding-out time. Taking a pitful of *Eparis* to conservatory and bringing away Heaths which have done flowering. Shifting young *Begonias*. Putting a few Pinks into first Peach-house. Shifting herbaceous *Calceolarias* into good rough material. Putting *Pelargonium* into greenhouse. Fasting up *Dendrobium*-house and *Lycaste*-house shades. Shading East Indian-house for about two hours during very sunny weather. Cleaning scale off *Camellias*. Syringing *Odontoglossum* overhead twice daily. Washing *Phakopsia* again with insecticide for thrips. Making another frame ready for Carrots and Radishes. Making up Potato-beds in frame ground. Getting all Peach trees pruned that are under glass. Cutting down the winter Heaths. Finishing the pruning of wall and pillar Roses; also that of bush fruits.

Jan. 30.—Digging amongst Currant trees by walk sides. Sowing Cabbage Lettuces; also Cauliflowers in frame. Potting-off late-struck *Christine Pelargonium*; also *Vallotas*, *Amaryllis*, and *Eucharis*. Putting one-year-old Vines into fruiting-pots. Getting ready to prick off *Lobelias*. Putting in *Banvardia* cuttings and cutting down old plants. Putting in fifth crop of Rhubarb. Shifting *Humeas*. Putting all *Fuchsias* into heat. Taking all plants wanted for forcing out of first *Hamburgh*-house. Laying verges. Getting all Vines painted and tied down. Fumigating *Pelargonium* and *Roses*. Giving Vine border a top-dressing of burnt refuse, ashes, loam, old mortar, and farmyard manure. Putting all tree protectors in order. Keeping first Strawberry-house a little drier as blossoms damp. Raising first and second Peach-houses to 55° at night.

Jan. 31.—Sowing *Walcheren* and *London Cauliflower* in heat; also *Lobelia speciosa* in heat, and more *Syon House Cucumber*. Potting Cattleyas, and beginning to shift *Centraureas* into 8-in. pots. Putting in *Petunia* and *Verbena* cuttings. Placing old *Verbenas* in heat for cuttings. Planting *Jerusalem Artichokes* with leaf-soil. Putting in *Eudive* to blanch weakly. Placing *Crocuses* and *Snowdrops* in cold pits. Fumigating *Gardenias*. Disbudding all *Hamburgh Vines* in pit to twelve shoots to a Vine.

February 1. Sowing *Capsicum*, *Tomatoes*, and *Carrots* on leaf beds; also *Lobelia* in heat. Beginning to box *Balu*. Potting *Tigridias* and placing them in Peach-house; also *Tuberose* and planting them in heat. Giving *Gardenias* some *Stauden's*

manure, and afterwards watering them with guano-water once a week. Potting in *Verbena* cuttings; also some cuttings of *Poinsettia*, *Heliotrope*, *Achyranthes*, *Salvia fulgens*, *Fuchsia*, and *Lobelia speciosa*. Planting *Roses* where needed. Potting in another batch of *Asparagus*. Tying down *Raspberry* canes. Watering thoroughly the third *Peach-house* inside. Beginning to sprinkle once a day *Peach trees* which have set their fruit. Manuring and just pricking over the *Asparagus* beds. Finishing the making of tree covers. Clipping *Privet* and *Yew* hedges. Thinning *Radishes* in frames. Placing all *Potato* frames on leaf beds and putting in soil.

Feb. 2.—Sowing two lights of *Radishes* and *Carrots*, making ten lights in all; also incomparable and *Ivery's Celery*. Potting *Isoplepis*, *Selaginella*, and *Cucumber* plants. Shifting *French Beans* sown on Jan. 21 into their fraying pots, and placing them on shelves of second *Vinery*. Potting *Laelia superbiens* in nearly all *Sphagnum*, the pots being crooked to the top. Taking out of heat *Calceolaria* and *Balm* cuttings, all well rooted. Removing *Strawberries* from pit to *Vinery*; top-dressing them with half loam and half manure (fresh droppings). Putting *Maréchal Niel* *Roses* into green-house. Shifting a few young *Fuchsias* and putting them into second *Peach-house*. Beginning to nail *Apricots*. Putting gas tar round *Violet* frames and stopping up all rat-holes. Pulling down shades in *Orchid-house* for first time, just as thermometer reached 80°. Washing *Daphnes*. Getting soil and pots in to warm for next *Beans*. Earthing-up first *Potatoes*. Loosening the *Peach trees* on walls. Beginning to prune *Apricots* and *Peach trees*. Thinning first *Hamburgs*. Cleaning herb-beds. Plants ready for house decoration:—*Hyacinths*, *Narcissus*, *Lily of the Valley*, *Heliotropes*, *Tulips*, *Crocuses*, *Dentzias*, *Cyclamens*, *Primulas*, *Snowdrops*, *Scarlet* and *Scented-leaved Pelargoniums*, *Lilacs*, *Callas*, and *Mignonette*.

Feb. 3.—Sowing *Orangefield* and *Kaye's Tomatoes*. Potting some *Oxalis* and autumn-struck *Heliotrope*; also some *Centaurea* cuttings, and putting them into *Peach-house*. Potting in cuttings of *Cineraria maritima*, *Carnations*, and *Scented Verbenas*. Planting out the first *Cucumbers* in five-light pit. Layering winter *Carnations*. Turning manure for *Celery*. Putting some manure on *Rhubarb* out-of-doors to blanch; also on *Seakale*. Making new *Horse-radish*-bed, taking up old stock in order to be able to prepare ground.

Orchids.

All the plants in the *Orchid-house* should now be inspected, cleansed, and re-arranged, and, while so doing, those which are about starting into new growth should be placed in positions where they can the more readily be observed and tended, or the aphides, which are so fond of the young growths, may attack and injure them beyond recovery. If aphides make their appearance on a few plants only, they should at once be removed by means of a sponge and weak *Tobacco-water*; but if they be generally distributed about the house, it is better to effect their removal by gentle and repeated fumigations. One of the great advantages of having a small lobby attached to the *Orchid-house* is, that plants requiring fumigation can at any time be moved into it, and fumigated there without subjecting the bulk of them to the risk of injury, which, unless the operation is carried out with the greatest care, generally happens. As the sun gets stronger more opportunities will be afforded for giving air, and this should be constantly done in order to retard the young growths and make them the more sturdy and fit to grow strongly when the proper time arrives. Nothing is more destructive to *Orchids* than the close, artificially-heated atmosphere in which they are too often kept during the winter; it is this that causes the loss of so many delicate-growing kinds, too high a temperature and too little air being more fatal to them during the resting than the growing season. During such weather as we have had for some time past (if we could insure the keeping off of frost), the *New Granada* and other cold-house plants would do better in a pit not heated by artificial means than in an *Orchid-house*, unless the latter is well managed with respect to temperature and ventilation.

—JAMES O'BRIEN.

Covering Back Walls of Greenhouses.—One of the most easily established plants either on the back walls of greenhouses or on inside rockwork is *Asplenium bulbiferum*. The young plants form and commence to grow on the mother plant, and if taken off with the portion of the old frond attached to them, and just pegged on to the surface of rockwork, or into the interstices of the brick-work itself, they will soon take root and establish themselves without further care. *Asplenium Belangeri* may also be utilized in the same manner, but it requires a stove, whereas *A. bulbiferum* is almost hardy; the individual fronds, too, being of good substance, last a long time in perfection.—J. CORNHILL, *Byfleet*.

MUSHROOMS AND MUSHROOM-HOUSES.

DURING the past season the crop of *Mushrooms* in the open fields was so unusually plentiful that from an old pasture a man filled a peck basket without moving from one spot. It is no exaggeration to say that a cart might have been loaded for several successive mornings from this same field at the height of the *Mushroom* season, and this abundance has been more or less general. The month of July and first weeks of August were unusually hot and dry, the Grass was burnt up, and the exposed soil became very much heated, which no doubt favourably developed the growth of the *Mushroom* underground; copious falls of rain succeeded at the end of August and during September, which revived the growth of Grass and with it that of the *Mushroom*. We may therefore take a hint from Nature in this instance, and turn it to good account in the culture of the *Mushroom* indoors in winter. The story of *Mushroom*-growing has been often written, each writer relating how he has best succeeded in the matter. The mode adopted by the French in the catacombs of Paris is most interesting and suggestive. The few remarks now to be made shall only be as a sequel to what I consider was the cause of the abundant crop of last autumn. A season of dryness and considerable heat seems to be essential to success in the early stages of the growth of the *Mushroom*, that is, in order that the spawn may run and permeate the soil. In making *Mushroom*-beds in winter it is sometimes difficult to secure manure in a sufficiently dry state, and in such a season as the present it is impracticable to dry it even in open sheds, but it must be sufficiently dry to be in good order for *Mushroom* growing. The usual process of throwing up the manure in a heap to heat, and so dissipate much of its moisture, is simply wasting the most essential elements of the manure. Suppose it to be brought from the stable-yard in a rough, fresh state every morning, or, it may be, at longer intervals, and to have become considerably wetted with rain, the droppings should be shaken out roughly, as the straw is in much too great a proportion to admit of its being used in the bulk. No objection is made, however, to the half being short straw. When shaken out it should be wheeled into an open shed and spread out about 1 ft. or more thick, and twice turned at an interval of three or four days. While yet comparatively fresh sufficient should be taken to the *Mushroom-house* to make a bed. In the *Mushroom-house* should be stored a quantity of thoroughly dry soil from a pasture where *Mushrooms* grow naturally, the turf having been pared off and secured when dry in the summer, but now warm and ready for use on the floor of the house; the manure should be mixed with some of this soil in the proportion of one barrow-load to three of manure, more or less, according to the state of the latter as to moisture. The mixture being then beaten firmly into the shelf or bed, a day or two should be allowed to elapse to let the heat pervade the bed uniformly, when the spawn should be planted just under the surface of the manure, and the bed soiled at once with ordinary garden mould sufficiently wet to make a solid cake all over the surface about 1 in. thick. After another day or two the bed should be covered over with dry straw. The temperature of the house should be maintained at about 70°, and the atmosphere saturated with moisture, water being freely sprinkled on the floor and walls of the house. The dry soil thus mixed with the manure absorbs any superabundant moisture, and checks overheating, so that it is always safe to put in the spawn at once. There is one point of the utility of which may be doubtful, and that is the soiling of the bed, for if the bed be formed on open spars of timber or iron bars for a bottom, *Mushrooms* will sometimes be found to grow as plentifully through the bottom of the bed as on the top, and if one's memory may be depended on, the French are described as not soiling their underground beds at all.

In about a month or five weeks the surface of the soil will be somewhat dry, and *Mushrooms* like pin-heads will be appearing all over the bed; the straw should therefore be removed. And now let us take another hint from the past season. Get ready a quantity of tepid water of the same temperature as that of the house—soft rain-water, if possible—and proceed to water the bed slowly and gently, in order to allow the water to sink in evenly. The bed should not be soaked; a safe quantity will be at the rate of 1½ gallons to the

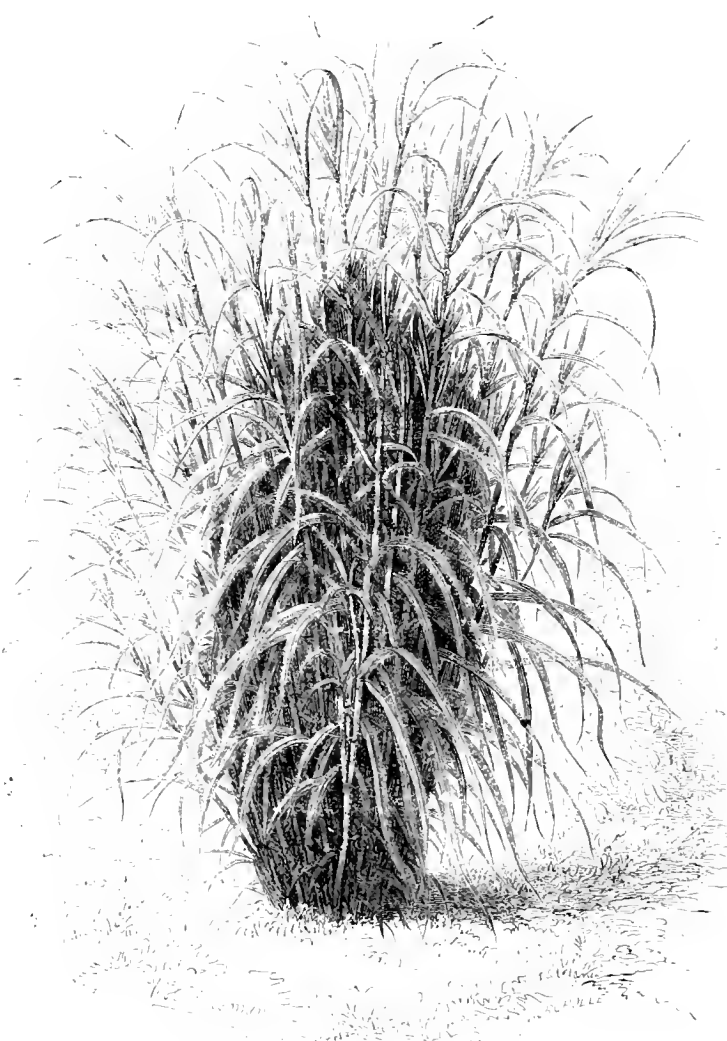
square yard, supposing the bed to be 1 ft. thick. The Mushrooms will now swell rapidly and abundantly. Good Mushrooms are very juicy and succulent, and must absorb a large amount of moisture from the bed. I fear, therefore, that it is a common mistake to allow beds to be too dry at this stage through fear of doing them some injury. There need, however, be no hesitation as to watering if everything have gone on rightly up to this time. No doubt Mushrooms are much aided in their growth by atmospheric moisture derived from the autumn dews, which are usually very heavy, and Mushrooms are saturated in the early mornings in the fields. I once knew an old gardener remarkably successful in the culture of the Mushroom who soiled his beds with thin turf the Grassy side upwards, and who kept the Grass alive and wet with fine spray from the syringe, the Mushrooms coming up among the Grass. When Mushroom-beds begin to show signs of waning, in about a fortnight or three weeks, a similar watering to the first should be given, when the second yield will be as good as the first; and a third watering, or even more, may be given with sufficient return to pay for the labour and space if plenty of room be at command, but if space be limited, beds may be cleared out after six weeks' yield. I find small beds preferable to large ones for the daily supply of a family, so that portions of beds may be made at short intervals. Shelves, divided into lengths of 9 ft. by 6 ft. wide, will be handy compartments in which to make weekly, or even fortnightly beds, for the supply of say half a peck of Mushrooms per day. Very much will, of course, depend on the quality of the spawn, for if this be not good, no amount of labour will be of any avail. Spawn should be procured not more than twelve months old, for although it will keep tolerably good for a much longer period if thoroughly dry and sweet, still I like it freshly made, just as I like to sow new seeds for a crop of Peas or other vegetables. I often hear of and see Mushrooms growing quite spontaneously out of beds which have never been spawned at all, a proof of which I have just noticed. An old Mushroom-bed, which had never been spawned, was cleaned out to make room for a fresh bed; it had become very dry, and, when too late, we found that the whole of the manure had become by some means quite full of spawn, possibly by fragments having been accidentally dropped upon it. It was evident that if the bed had been soiled and watered like the others, a crop of Mushrooms would have been the result.

W. D. C.

ANOTHER ORNAMENTAL GRASS.

(*SACCHARUM ÆGYPTIACUM*).

GRASSES of noble habit have of late years deservedly obtained popularity, and especially has this been so since the introduction of the Pampas Grass, the latter having proved so satisfactory not only in large gardens, but also in the grounds attached to almost every suburban villa. The plant, of which the annexed is an representation, is also a Grass attaining, under favourable circumstances, a height of from 6 ft. to 8 ft., and well deserving a trial wherever its ally *Gymnothrix latifolia* has been found to succeed. As will be seen, it forms a



Saccharum ægyptiacum.

dense plumose tuft of handsome foliage, and even in northern localities, where it will not succeed well in the open air, it deserves a place along with the *Gymnothrix* in the bed of a cool conservatory, in which its light and graceful habit will be found to contrast favourably with that of Fan Palms, Tree Ferns, and half-hardy *Araucarias*. It may be seen during the summer months in the Parc Monceau and in other Parisian gardens, whence so many beautiful half-hardy exotics have been introduced into English gardens.

B.

MAGNOLIAS.

MAGNOLIAS, where they succeed, are among the grandest of flowering shrubs or rather small trees. Unfortunately the evergreen species are not sufficiently hardy to thrive without protection in winter, except in the more southern counties, and even there they make but slow progress as standard trees; a few specimens with which I am acquainted lose their leaves in very severe winters, and their young wood is even injured. *M. grandiflora*, one of the finest of the whole family, succeeds against a south wall in most parts of the king-

dom. I have seen a large tree of it in a sheltered corner in Murrayshire. Here, in Dorsetshire, are grand trees of it 30 ft. high, and if the wall against which they grow were higher they seem capable of attaining a height of 50 ft. I have cut from it repeatedly growths 6 ft. long which were overtopping the wall, and curiously enough those succulent branches never receive any injury from exposure to frost and north winds; hardiness seems much to depend on the protection given to the roots and boles of the trees. Of all the varieties of *Magnolia*, *M. grandiflora exoniensis* is the best; its foliage is of a paler green than that of the species, more regular in shape, the margin recurved, and the under side more thickly covered with a brown tomentum; it is a most prolific flowerer,

and continues in bloom from June to October, and even later in favourable seasons. The ordinary *M. grandiflora* is a more robust plant altogether than *exoniensis*; it has more shining, Holly-green foliage, which is not so handsomely shaped and broader than that of *exoniensis*, and it does not flower so freely, but it sometimes ripens its seeds, which *exoniensis* does not. *M. grandiflora* may be readily propagated by means of layers, and it will grow in any well-drained soil—a sandy yellow loam seems to suit it perfectly. *M. tripetala*, a deciduous species, sometimes called the Umbrella Magnolia, makes a very handsome lawn tree; it forms a round-headed specimen, 20 ft. high and 30 ft. in diameter of branches. When old these attain a pendulous habit, the points turning up again like the branches of a candelabrum. The leaves, which are large and handsome, are arranged in whorls round the points of the branches, and hanging down by their own weight are not unaptly likened to so many parasols or a huge candelabrum. Suckers from the root of this species made growths last season 5 ft. long and as thick as one's thumb. The flowers which appear in spring are white and very large, but by no means beautiful, nor do they possess the most agreeable scent. This species seeds freely here, and the seeds, which are like small Coffee berries, are enclosed in a red pulpy coat, which is again enclosed in a pod. Sometimes two seeds are in one pod, and these pods are arranged on a terminal spike something in the form of a cone; the pods open like those of the Furze, and the seeds drop out in November. Seeds of it are obtained in abundance in France. Of *Magnolia purpurea*, which is a free-flowering deciduous species, the variety called *gracilis* is the best; it is of twiggy, pendulous habit, and makes a handsome floriferous shrub when grown in a situation which suits it. The flowers, which are a pale purple in colour, open in May and June, and last a long time on the tree, or when cut, in glasses. I have not seen it ripen seeds. I have many plants of it growing in different situations, and I find that it does not succeed well in dry, exposed localities, or in dry soils. In a shaded, moist position it develops its foliage much more satisfactorily, and every twig is terminated by a handsome pendulous blossom. Our best bush of this *Magnolia* is associated with some very fine specimens of *Rhododendrons*, which make foliage more like that of a common Laurel than a *Rhododendron*. *M. glauca* is a handsomer plant than the kind last named so far as foliage is concerned; it requires a moist soil and somewhat shaded position. The fine glaucous blue of the under-side of the leaves makes it distinct from all other *Magnolias*, but to have well-developed foliage and a plant worth looking at it must have an open peaty or sandy soil and abundance of moisture at the root. The flowers, which are of a creamy-white colour, have stiff leathery petals. They are about the size of an egg-cup, and are deliciously scented. It is indeed the sweetest *Magnolia* with which I am acquainted, except, perhaps, *M. fuscata*, which, although from another hemisphere, should prove equally hardy.

Canford, Dorset.

W. D.

GOLDEN VARIEGATED DECIDUOUS TREES.

PREPARATORY to commencing his work, the painter naturally examines closely the pigments with which it is to be wrought, and judges are wont to say now-a-days that marked loss in enduring qualities may be detected in the fading, adulterated tints of many modern pictures. In like manner, the designer of artificial landscapes, amateur or professional, needs to study well the nature of his material, for the simple reason that living plants exceed dead mineral paints in delicacy and complexity. He must secure health, hardness, and the native symmetry that comes by intelligent pruning. He must know habits and capacities, that he may be able to arrange for future effects on maturity, and accomplish certain more immediate results. But, above all, he must have variety and abundance of colour to give the indefinable finish of contrast, shading, and harmony that is essential to the perfection of a noble picture. To assist in accomplishing this to a greater or less degree, we ("Moore's Rural") propose to remark on a few of the most prominent and effective varieties with curious-coloured leaves, commencing with those of a distinct golden type. In general terms, we may say, by the way, that all forms of variegated shrubs and trees should be brought forward, conspicuously, near walks, and individual plants of each group disposed on the principle of large to the rear and small to the front. The composi-

tion of colours will, of course, be controlled by personal taste. It may be well to notice also that all variegated trees tend to dwarf forms than those of the parent species.

GOLDEN ALDER (*Alnus glutinosa aurea*) is a striking tree of pure gold colour and much beauty.

GOLDEN ASH, as represented by two very similar varieties, *Fraxinus americana acucubefolia* and *punctata*, spotted more or less with gold, is hardy, distinct, and enduring, resembling, as usual, the parent in general form.

GOLDEN CATALPA (*Catalpa syringifolia aurea*), is broadly blotched with gold, and has the large, massive character of leaf, and round, spreading head of the parent.

ROESSELL'S GOLDEN ELM (*Ulmus campestris aurea*) is a dwarf form of the English Elm, with leaves richly suffused with gold. It is an enduring variety and a decided acquisition.

GOLDEN HORNBEAM (*Carpinus Betulus aurea*) is distinctly marked with yellow over half the surface of the leaves, and has the parent's sturdy habit and persistent retention of foliage in autumn.

GOLDEN HORSE CHESTNUT (*Aesculus rubicunda aurea*) has curious leaves, margined with gold in wavy masses, and is a remarkable and valuable form, of much larger habit than the last.

GOLDEN MAGNOLIA (*Magnolia acuminata aurea*) is finely marked, and well deserving of more extended employment.

GOLDEN JAPANESE MAPLE (*Acer japonicum aureum*) has probably the most exquisite colouring of all Golden-leaved trees. Its type is dwarf, and allied only to Japanese forms, but the round, scalloped leaf is shaded and tinted with soft gold on convex surfaces in a manner most marvellous. The variety is very rare and difficult to propagate, although, in common with all Japanese Maples, well suited to American summers and winters.

GOLDEN Sycamore (*Acer pseudoplatanus aureum*) has a very decided golden colour tinging its broad leaf, but, more than most others of the class, it loses this valued tint as the season advances.

CONCORDIA OAK (*Quercus pedunculata concordia*) has, and deserves, the very highest rank for purely golden leaves and sturdy, enduring habit. Its size at maturity equals that of the ordinary Oak.

GOLDEN OAK (*Quercus pedunculata aurea viridis*), another variety, is still rarer and, if possible, more beautiful than the last, with a more refined type of beauty. It is broadly blotched, or variegated, with yellow.

GOLDEN PLANE TREE (*Platanus occidentalis aurea*) has all the virtues and defects of the parent, and is finely tinged with yellow.

GOLDEN TULIP TREE (*Liriodendron tulipifera aurea*) is as noble an acquisition as the parent would be considered if recently introduced. The leaves are very broadly margined with permanent gold.

All, or most all, of these Golden-leaved trees are, and must long remain somewhat expensive, partly from rarity, and partly from the necessity of grafting to retain their colours in perfection. Seedlings prove so variable in their tendency to revert back to the original green type, that little worth should be attached to them, and layers, with their ill-formed system of roots, afford so crude a method of propagation that we can but take the more expensive grafted plant.

NOTES AND QUESTIONS ON TREES AND SHRUBS.

Holly Berries Two Years on the Plant.—It is not unusual for the Balearic Holly to be seen in red berry—as referred to by "J. S. W." (see p. 48)—for two seasons. I have not observed this peculiarity in any other variety of Holly, but I have frequently seen the berries remain the second year on the variety just named.—C. M'D.

The Blue Gum Tree.—Californians announce a valuable quality in the *Eucalyptus globulus*. It is asserted that it will successfully resist the ravages of the teredo when placed in salt water, and as it does not rot readily, will, it is claimed, make valuable piles for wharf use in harbours. Should that be proven, their growth can be made to pay a better profit than any other kind of forest tree, as they will, under favourable circumstances, attain a sufficient size to be made into piles in from five to eight years.

Hardiness of *Paulownia imperialis* (see p. 47).—A plant of this about 15 ft. high grew twenty-five years ago in the border of the flower garden at Ash Grove, near Sevenoaks, where it was perfectly hardy. The situation was very cold, being on the top of a hill, but it was thoroughly drained, the subsoil being gravel. I do not recollect its flowering; it must have been planted at least ten years before by the late Mr. John Wells, who was many years gardener there. If it escaped the severe winters of 1869 and 1866 and is still standing, it must by this time be a fine specimen.—JOHN GARLAND, *Killerton Exeter*.

Mistletoe Chemically Considered.—MM. Grandean & Bouton have found—
1. That the composition of the stem of the Mistletoe differs essentially from that of the species of trees on which it grows. 2. That the composition varies with the species. 3. That it contains much more potash and phosphoric acid than its supporting trees, and much less lime. 4. That it seems to live on the tree like a plant on the soil; it takes from the yellow parts gorged with nutritive juices, the incombustible matters necessary for its organization.

CYCLAMENS AND THEIR MANAGEMENT.

With the exception of two-year-old bulbs, my Cyclamens are, as a rule, at their best during November and December. I sow some seed annually, and only flower the same bulbs twice. In order to have good plants with an abundance of flower and foliage during the months just named, I sow my seed in the beginning of the year in shallow seed pans, but previous to sowing, I soak it for an hour in water, as I find by so doing that it germinates three or four days sooner than it otherwise would. When sown the pans are placed upon a shelf, close to the glass, in a stove, and there they remain until the young plants are strong enough to be potted off into thumb-pots in leaf-mould, loam, and sand. They are then replaced upon the same shelf for some six weeks, when they are removed to a Pine-pit, and shifted into larger pots as required, using leaf-mould, maiden loam, peat, cow manure, and sand in about equal proportions. When growing freely they must be well supplied with water, and I allow them to remain in the pit in question until the middle of August, when they are taken out and placed in a cool frame, or under a hedge or a north wall. Here they may remain until October when they are removed to the greenhouse, where they soon begin to show signs of flowering, and the result is good foliage and abundance of blossom, and that in the short space of ten months from the sowing of the seed, the pots used being 18 and 32-sized ones. I water them pretty freely with soot-water during the height of their growing season. After they have ceased flowering, they are put out into a cool house and kept watered until the leaves show signs of decay, when it is withheld. As soon as early spring frosts are over, they are taken out-of-doors and set under a north-west wall, and there they remain exposed to all weathers until about the first week in August, when they are shaken out and put into a small pot, using the same material as recommended. I now place them in a gentle heat for a month or so, when, if all goes well, they will need a final shift into 32-sized pots; they are then taken to the greenhouse where they come into flower just as the seedlings did. The best are selected for seed-bearing for next season, and the rest are thrown away. In this way I keep up a stock of good flowering bulbs. Williams' strain is that which I like best.—JAMES GIBBS, *Chartham Park*.

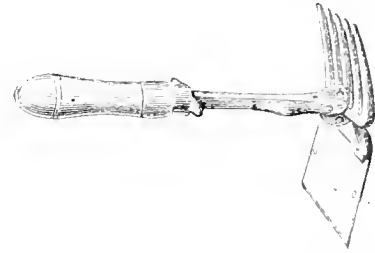
Nut Bushes in Flower.—I can remember no season in which there has been such an extraordinary display of catkins on Nut bushes as there is this year, and I find that the little crimson female flowers are also very plentiful. The trees thus adorned have a very beautiful appearance; and with the fine open weather which we are now experiencing they will doubtless set a heavy crop of fruit. They have been in bloom for the last fortnight or three weeks. I may also add that I have seldom seen a better show of bloom-buds on all kinds of fruit trees than there is this year. Let us, therefore, hope that we may have a continuance of open weather, otherwise our prospects of an abundant fruit crop will, I fear, be doomed.—J. TAYLOR, *Hardwicke Grange*.

Crocuses Eaten by Rats and Mice.—"Catch and kill them" (see p. 60) is doubtless a good way of getting rid of rats and mice, but how is that to be done? The best garden mouse trap with which I am acquainted is a common stone pickling jar. Get a good-sized one, or as many as may be thought desirable; well grease the rim and a little way down inside with lard, and dig a hole near where the mice resort, so as to place the top of the jar level with the surface of the ground; then half fill the jar with water. This trap, if occasionally greased, and kept supplied with water when necessary, will soon reduce their numbers: I have taken six or seven every morning from one jar. Rats are more difficult to catch, being very cautious, and if caught in common iron traps they will eat through any plant within their reach, even a good-sized stem of a Grape Vine, as I have known them to do to my cost, when trapping some that had gained access through holes into a Vinery, in which they made "more free than welcome" with the Grapes. Iron or steel spring traps are also dangerous where cats or dogs are kept, but where these do not exist they are best—*i.e.*, if carefully hidden; a little long soft Grass lightly laid over them, and over that some fine soil, so that the bait only is seen, will generally be found the best plan of setting them; but if they can be placed in their runs baiting is unnecessary.—R. R., *Mansfield, Notts*.

Eranthemum pulchellum.—Considering the scarcity of blue-flowering plants at this time of year, this valuable, free-flowering old favourite deserves to be often met with than it is. Well-grown plants of it may now be found in one of the houses at Fulham Palace. They are grown in 6-in. pots, and are 2 ft. high, bushy, and well furnished with large, healthy foliage and beautiful blue blossoms, which, when associated as they are with Poinsettias, Euphorbias, and other red-flowered plants, are very effective.—J. B.

NEW GARDEN TOOL.

The annexed engraving represents a somewhat novel invention in the way of garden tools; it combines in one a small rake, spade, Dutch and draw hoe, and a fork, one and all of which will doubtless be found useful when working amongst



choice plants or seed-beds where implements of a larger size could not be safely employed. Its inventor is Mr. James Blyde, of Spital Hill, Sheffield. S.

ROYAL HORTICULTURAL SOCIETY.

By a letter from this Society which lately appeared in the "Times," it seems that the Council have determined to continue the South Kensington Gardens on their former footing, and to make them as attractive to the residents in their neighbourhood, and of London generally, as the means and nature of the Society will permit. Oh, most lame and impotent conclusion! After all that has passed, the Society to be thrown back into the arms of the South Kensington esnarer, and its existence to be continued as a parasite on a rich London district! Is it not about time to form a new society—a national Society of Horticulture—which will be maintained by the now great and every-day-increasing body of horticulturists throughout the country? I have too many ties to the old Society, and too many friends among those who work it, to make me like to take an active part in raising a new one, but if any competent energetic man will come forward who, partly for the love of horticulture, and partly for an occupation and a post, is disposed to work the matter, I will show him that there is abundance of power and will throughout the country to found a representative society, which only requires being brought together and organized. And in the meantime, as there may be another turn of the wheel, and the Council may be driven to seek their main support from the more earnest horticulturists, let me beg those good horticulturists who are collecting names of world-be Guinea Fellows of the society when it is free to increase their exertions rather than relax them.

Heathcote, Weybridge Heath.

GEORGE F. WILSON.

NOTES AND QUESTIONS—VARIOUS.

Echin fastuosum hardy in Ireland.—In reference to the notice (see p. 41) regarding the hardness of *Echin fastuosum* in this country, I beg to say that I have been long familiar with it growing out-of-doors, and that, too, in Westmeath.—JOHN BAIR, 12, *Pembroke Road, Dublin*.

Coloured Primroses.—Mr. Fish asks (p. 61) why coloured Primroses flower the earliest? With us the Double White had many fully expanded blooms on it at Christmas—certainly as many, if not more, than any dark coloured one. My impression is, that cultivation has much to do with precocity of flowering.—J. G., *Henham*.

Long-stalked Violets.—The Czar Violet mentioned by Mr. Fish (see p. 25) is excellent in this respect. We have a six-light pit full of Violets, most of them being the Czar, from which we gather daily. They are particularly useful in bouquet making, and when associated with white Camellias or Eucharis, little else is wanted. If a little colouring be desired, that useful winter-flowering plant *Ephiphylllum truncatum* will supply it.—R. GILBERT, *Burghley*.

Derbyshire Spar.—"D." (see p. 60) complains of the expense of this spar, and suggests that agents should deliver it in different parts of the country carriage free. This is an excellent suggestion, as we find that the carriage of a truck load comes to more money than the spar itself; but we can scarcely call ourselves victimised if we get it at the cheapest rate, whether wholesale or retail, in which carriage is included.—J. G.

Mistletoe on the Hawthorn.—I observe in your issue of January 6 the following:—"We have already heard of a successful attempt to work the Mistletoe upon the Hawthorn, and so produce neat berried beads." Now that the Wye Valley Railway (from Chepstow to Monmouth) is opened, one of the most beautiful rides in England is that from Chepstow to Ross, and if any of your readers travelling by that line will stop at Bigswear Station and give me a call, I shall be happy to show them at least a dozen Hawthorn trees with bunches of Mistletoe growing upon them just as naturally as that parasite grows on the Apple or Poplar tree.—H. R. HERBERT, *The Glyn, Whitebrook, near Monmouth*.

Violas and Drought.—"T. S." (see p. 60) would appear to be generally unfortunate with Violas in all seasons, both wet and dry; I therefore conclude that he either has a poor selection or that they fail through some local cause. During the late exceptionally dry season I saw them used effectively much further south than here, and few dwarf-blooming plants flower more continuously. The improvement effected during the last few years on the old *Viola cornuta* is a proof that growers have not, as a rule, selected this class of plants to out-of-the-way corners of mixed borders, but have brought them prominently into the front rank amongst bedding plants.—HENHAM.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES ON LILIES.

I AM fond of Lilies, but unfortunately for me my only plant of *Lilium Wallichianum* is going to bloom at my home at Bingham, in Nottinghamshire, while I am in Cardigan; therefore I fear I shall not see it. Dr. Moore, of Glasnevin, told me that he was the first to grow this Lily, but somehow he has never succeeded since; doubtless it requires greenhouse treatment, and does not begin to grow till many months after other Lilies. My bulb showed no signs of growth till the middle of July, and I began to think it never would; but it then began to grow vigorously, and was in first-rate condition when I last saw it. My plants of *L. auratum* have been very fine this year and I will give my experience of imported bulbs. Last January I bought fifty at Stevens', and planted them in a bed of loam, sand, and leaf-mould on the north side of a Yew fence, so that the sun did not scorch the soil in hot weather; they soon began to develop, and all made strong growth during the spring, but being small bulbs, I did not expect them to make much progress the first year. Some grew 3 ft. high, some 4 ft. or more, and bore from four to seven flowers, of which I removed all but two, in order to prevent the bulb being weakened by carrying too many flowers the first season. Nearly every Lily was different—some being striped with magenta, some with hardly any spots, and some with many spots; one of them was a very fine variety with a deep magenta stripe running almost into the centre of the flower; this magenta, however, turned brown after the first day, but I have never seen and never expect to see an *Auratum* Lily banded with pure scarlet as described in nurserymen's catalogues. The so-called *L. rubro-vittatum* sold at Stevens' were not particularly highly-marked varieties of *auratum*. I have had one *L. auratum* stem about 9 ft. high, and one with seventeen flowers on it; and I have had one gigantic flower 10½ in. across the bloom, and measuring across the fully expanded petals from tip to tip 16 in. I have heard it asserted that Mr. McIntosh's Lilies at Weybridge were 18 ft. high, and on inquiry Mr. McIntosh courteously forwarded me the following particulars of these wonderful Lilies:—"In reference to the height," he says, "the highest *L. auratum* we have yet had was last year, a bulb with two stems, one of which measured from the ground-level to the top of the stem 11 ft. 2 in.; the same Lily has again had two stems, but the highest did not measure above 10 ft. 8 in., and the other was a little shorter. I expect that this difference in height was caused by the very cold and backward spring and the subsequent very hot summer, for I could not conceive any other reason why it should not have been taller rather than shorter than that of the previous year, judging from the size and volume of the stem, which measured about 3½ in. in circumference, and each year since I have had it it has increased in size. With me the general height of *L. auratum* this year varied from 6 ft. to 9 ft. and upwards. As to the number of flowers on a single stem, we have had some this year with thirty-seven; last year one with a fasciated stem bore seventy-eight. I do not consider this year that they have progressed so well with me as when the sun has been less powerful. I have just succeeded in flowering *Lilium neilgherrense* out-of-doors, the first, I believe, that has flowered in this county; it has now gone off after being out about a week; the stem was 4 ft. 7 in. high, and the flower measured about 7 in. across." It would have been interesting if Mr. McIntosh had mentioned how deep these Lilies had been planted. Cultivators sometimes tell me that they plant Lilies from 18 in. to 22 in. deep, but in this cold county the sun's influence is not strong enough at that depth to bring up the young growths in spring. Possibly the holes were made 18 in. deep, and the bulbs themselves are not more than 10 in. deep in the ground; I believe 8 in. is the proper depth for the finest bulbs, and then only with light soil above. I know that the bulbs are not injured by frost, and I do not think they are by wet, because I

have a small bulb about 10 in. deep in ground that was quite boggy, which yielded seventeen fine flowers this summer, and was much earlier in its growth (though not in its flowering) than any of the Lilies planted in drier soils. I always put sand round the bulb; it prevents the snails and slugs working into the scales.

Since writing the above at Cardigan I have returned to my garden. I have lately been lifting my plants of *L. auratum* and planting them in the open border; they turned out fine, healthy bulbs, and are growing well; some had flowered without making a single root below the bulb, the flowers and stalks being entirely supported by the roots from the stems above the bulb. These roots that are now forming under the bulb are manifestly increasing and feeding it, and then the bulb throws up a stem which is in turn in a great measure supported by its roots above the bulb. This is a good argument for tolerably deep planting. *L. speciosum* and *L. auratum* should never be grown in pots with no soil above the bulb. Some Lilies seem to make no root-growth above the bulb. *Lilium croceum* does not, nor do the Martagon Lilies; such should evidently not be planted deeper than from 3 in. to 4 in. Everybody who loves hardy flowers should have the white Martagon, on account of its loveliness in form and colour; next to it I should place Martagon dalmaticum var. *Catani*, a blackish-purple Lily—to my mind a royal colour. My white Martagon grows freely in turfy loam and seeds freely, and I have no doubt that all the Martagons will do well in that soil. *Lilium colchicum*, otherwise known as *L. monadelphum* and *L. Szovitzianum*, is a grand Lily for the herbaceous border, delicate in scent and very distinct in every way; it grows about 4 ft. high, and has large citron-coloured flowers spotted with black. There is also a perfectly pure yellow variety without spots, *L. chalconicum* (the Turk's-cap Lily), which is known to all, but few people have seen the large variety known as *L. chalconicum majus*. Lilies of the chalconicum variety grow superbly in the sandy soil of Glasnevin, and you could find many stems with a corona of six or seven flowers, but this form of *L. c. majus* eclipsed them all; there was only one flower on a strong stem, but that flower was almost as big as a bloom of *L. colchicum*, very much marked and ribbed with deeper red. This will be a grand form for our gardens. I was well pleased with my journey to Ireland, for there I saw the true *L. longiflorum eximium* in Dr. Moore's nursery in the Botanic Gardens. This Lily is as completely distinct from *L. longiflorum* as *L. auratum* is from *L. speciosum*, though I do not suppose the plant I saw had attained its full proportions. I think the tube must have been some 9½ in. in length, and creamy-white in colour. It was quite different from the Lily I received last year from Dr. Wallace as *Lilium eximium*, and whether it was quite the same as Mr. Wilson's variety, which is completely distinct from *L. longiflorum*, I cannot determine until I see them side by side. Mr. Wilson's variety, judging by a photograph, is very much longer in its tube than the normal form, much more reflexed, and larger in all its parts. The one at Glasnevin seemed to me longer still than *L. longiflorum Wilsoni*. While on the subject of white Lilies I have this year bloomed *L. auratum* var. *virginale*, a pure white with no spots, but of a pale lemon colour, very distinct, but the whitest of all Lilies, and whiter even than the White Ramanas Rose (*Rosa rugosa alba*), is the flower of the variegated *L. candidum*. This variety and *L. candidum speciosum* bloom with me at least a week later than the normal type, though the botanical authorities declare *L. speciosum* to be the earlier form of *L. candidum*. It blooms later with me. I believe we may set down *L. candidum* with golden foliage as the whitest of all hardy plants; the foliage, also, is very ornamental in winter and spring. A grand variety for the open border is *L. Browni*; it is a very large form of *L. longiflorum* with rich chocolate exterior, and such stamens. The petals are reflexed to such an extent, that one might imagine the flower had been invented by some idealizer. It will succeed perfectly in the open border planted in turfy loam. I have not yet seen *L. longiflorum* succeed untouched in a cold climate; it always comes up too soon and gets caught by March winds, but I firmly believe *L. Browni* does not suffer from the diseases common to *L. longiflorum*. I have never succeeded well with *L. speciosum* and its varieties, though

I have bought from time to time most of the highly-described varieties; with me they were in no way different from the ordinary forms. I have still a liking for the variety known as *L. purpuratum*, but I have never seen such magnificently coloured plants of *L. speciosum* as those grown by the famous Abyssinian traveller, Mr. Mansfield Parkyns, at Woodborough, in this cold county of Notts. His soil is good rich, unctuous, clayey loam, rather red in colour. How is it that the bulbs grown in Holland are so much finer than those grown in England? *Lilium concolor* flowered well in the open border, and I believe it will become a great favourite where the smaller and more delicate herbaceous plants are appreciated. Whoever grows *Omphalodes Luciliae* ought to grow *Lilium concolor*. The latter has stems 18 in. high, and exquisite little red flowers spotted with deeper red, opening like falling stars, and afterwards becoming reflexed. *Lilium tigrinum splendens* is of course the future Tiger Lily of our gardens. I saw a splendid specimen at Woodborough, and expect to learn much from that garden in the future. The double Tiger Lily is a grand plant when properly grown, and I think well of the form called *L. tigrinum erectum*; the flowers being set at right angles with the stem appear very showy. I was much gratified by the sight of a glorious plant of *Lilium giganteum*, with fantail stem, growing in Mr. Morgan's garden at Cardigan. This plant is in strong loam, and is always left to itself, young bulbs taking the place of the exhausted growths. It was growing in the full sun in front of a greenhouse, and the *Belladonna Lilies* later in the year were a perfect picture, but mine are quite a failure; I believe our climate is too cold for these *Amaryllids* and for *Lilium giganteum*, though I mean to give both a fair trial. I have planted some bulbs of *L. auratum* in silt brought down by a neighbouring stream, to see how that will suit them. For these bulbs I removed nearly a ton of soil from my garden, and in its place introduced an equal quantity of this silt. I believe the Californian Lilies would grow vigorously in this soil, and I mean to try the Washington Lilies in it. I saw some fine spikes of these Lilies at Glasnevin, but the bloom was past its best. Again, let me advise all cultivators to grow in turfy loam *Lilium excelsum* for the backs of herbaceous borders, and not to be content till they are 7 ft. high. Other Lilies for the herbaceous border are *L. auratum*, *tigrinum splendens*, *candidum*, *umbellatum*, *incomparabile*, and *Brownii*.

Bingham, Nottinghamshire.

FRANK MILES.

Ferulas in Spring.—Among the *Ferulas* now vigorously pushing up their graceful plumes in the Paris Garden of Plants may be noticed *F. ferulago*, *F. neapolitana*, *F. tingitana*, *F. communis*, and *F. sulcata*. There are slight, but evident differences in the foliage of these which do not differ much in size, except *F. sulcata*, which is the smallest of them. For general culture it is doubtful if a variety of species be desirable, as they are so much alike, but for adding a beauty of form to the garden of hardy plants in the early part of the year, there is nothing at all equal to them.—V.

Dates of Early-flowering Plants.—The dates on which the earliest flowers of a new year open their first blossoms have some interest to those who love their gardens. The singular absence of frost this year has caused winter flowers to come out betimes, as the following list of the very commonest hardy January flowers will show:

	1872-3.	1873-4	1874-5	1875-6	1876-7
Snowdrop ...	17 Jan.	25 Dec.	12 Jan.	not recorded	7 Jan.
Yellow Crocus ...	15 Feb.	18 Jan.	31 Jan.	2 Feb.	27 Jan.
Blue Crocus ...	15 Feb.	18 Jan.	11 Feb.	not recorded	26 Jan.
Winter Aconite ...	23 Jan.	6 Jan.	24 Jan.	19 Jan.	12 Jan.
Siberian Squill ...	4 March	3 Feb.	not recorded	2 Feb.	30 Jan.
Hepatica ...	not recorded	9 Jan.	26 Jan.	19 Jan.	12 Jan.
<i>Erica carnea</i> ...	29 Jan.	8 Jan.	12 Feb.	not recorded	25 Jan.

These dates are jotted down in my copy of Robinson's "Hardy Flowers." Not until writing this note have I put them together so as to compare them, and it is singular how they agree in the variation of the seasons. The winter of 1873-4 is much the earliest in the last five years, and in that season we spent the first fortnight of February in Scotland curling, which implies severe frost. Analogy may therefore induce us to look for a sharp bite yet ere winter lengthens into spring. The list might be made a very copious one from the notes on the margin of the book in question; but the above flowers are those with which we are most familiar.—SALMONCES.

NOTES OF THE WEEK.

ERANTHEMUM RETICULATUM.—This, one of the most valuable of ornamental stove plants, has leaves of an emerald green colour beautifully netted with gold. Well-grown examples of it may now be seen in Mr. Laing's nursery at Forest Hill, where, contrasted with other plants, they produce a good effect. This *Eranthemum*, indeed, is little inferior to *Croton pictum* in point of leaf beauty, and it possesses the good property of growing much more rapidly, and that in a much lower temperature.—S.

MIGNONETTE ON WALLS.—The common garden Mignonette is now flowering freely on the vertical face of a wall on which it is established in the Garden of Plants, Paris, and no doubt it is established in various similar positions elsewhere. In such a situation it becomes perennial, but the flowers are not so fine as when grown in rich ground.—V.

CLERODENDRON VISCOSUM IN WINTER.—This not showy species has a delicious odour, and, flowering freely at this season, would probably prove useful where many winter flowers are desired; it is firm and stubby in habit, and produces flowers freely—white with a stain of delicate pink in the centre. It is now in flower in the crowded stoves in the Garden of Plants, Paris, and probably it will prove more ornamental when well grown in a light house near the glass. It is an old plant, but not well known.—V.

MESSRS. VEITCH'S CAMELLIA-HOUSE.—This is now well worth a visit, hundreds of blooms being fully expanded, and many among them of new and choice varieties. They are arranged, too, in a way in which their colours are set off to the best advantage, and it may be added that, in order to realize the full beauty of Camellias, they require, as they have here, an extensive glass structure wholly devoted to them.—M.

EUPHORIA LITCHI IN FLOWER.—This plant, which produces the Lee Chee fruit now often seen in the London markets, is in flower in the Paris Garden of Plants, as they there suppose for the first time in Europe. The blossoms are green and small, like those of a Grape in long and branched panicles.—V.

BEGONIA FREBELI.—This is now finely in bloom in the Amburst nurseries. Its flower-spikes, which are very strong and numerous, each carry from ten to twelve large and brilliant scarlet blossoms. This *Begonia*, which is said to be quite hardy, is easily propagated, and will doubtless ere long be extensively grown for furnishing cut flowers for market, as well as for decorative purposes in other ways. Being bulbous-rooted, it may be started into growth and flowered at almost any season of the year.—C. S.

CROCUS FUSILLUS.—This modest little species is the only one now in blossom in the Paris Garden of Plants. The progress recently made in England with hardy plants is so great that Continental gardens are getting behind, though for collecting European species Continental gardens have greater facilities than ours.—V.

ODONTOGLOSSUM CIRRHOSUM.—Plants of this comparatively new and lovely Orchid are now flowering freely in Mr. Bull's nursery at Chelsea. Even in 60-sized pots small plants of it are producing from three to five flower-spikes, each of which bear from ten to twelve blooms. When well established, therefore, this species may be expected to prove one of the most floriferous of its class.—C.

FINELY-BLOOMED CŒLOGYNE CRISTATA.—A specimen of this useful winter-flowering Orchid in Mr. Wilkins' collection at Leyton is furnished with upwards of seventy spikes of bloom. Many of the flowers have been cut, but even now there are no fewer than 250 blossoms, fully expanded. Some of the spikes bear seven flowers each, five being the number generally produced. Few Orchids are more floriferous than this, or better adapted for supplying cut flowers for several weeks during the winter and early spring months.—S.

PITIOSPORUM TOBIRA AS A SMALL POT PLANT.—This fine shrub, hardy by the sea-shore in various parts of England and Wales, is grown in small pots for the Paris flower shops, in which it may be seen in bloom at this season. The plant is worthy of culture in this way in districts where it does not thrive out-of-doors, its blossoms resembling Orange blossoms in odour, and to some extent in appearance.—V.

TYDÆA BELZEBUTH.—Neat little plants of this *Tydæa* are now flowering freely in one of the plant-houses in Messrs. Rolliason nursery at Tooting. Its flowers, which are large and beautifully spotted, are very attractive, and contrast well with those of other plants now in bloom in the same establishment.—C.

BAMBUSA METAKE IN THE PARC MONCEAU.—The most effective plant now in this park is this fine hardy Bamboo, which forms huge tufts, the foliage on which is quite green. No evergreen shrub, Conifer, or other tree, is so striking. *Bambusa Metake* is quite hardy in the south of England, and in mild districts.—V.

THE INDOOR GARDEN.

NEW SPIRAL-LEAVED CROTON.

(C. TORTILE).

OF some new Crotons which are about to be distributed by Messrs. Veitch & Son, of Chelsea, during the ensuing spring, the annexed engraving represents one of the best. It has much larger foliage than that of *C. spirale*, and its colours are much more vivid, the ground colour being a bright glossy green blotched with golden yellow, the midrib and principal veins being of a rich carmine tint. As in most other kinds, however, the carmine here and there becomes mixed with the green, and this gives rise to various tints of brown or purple. This particular variety possesses an advantage over many others, inasmuch as its natural growth is so compact and bushy, that little or no artificial tying or training is required. Either as an exhibition plant, or for ordinary purposes of warm conservatory decoration, this plant assuredly deserves attention. Crotons of all kinds are readily propagated by means of cuttings made of the young lateral shoots; these root freely if inserted in a well drained cutting pot and plunged in a genial bottom-heat of from 75° to 80°. The best compost for Crotons is a matter of some importance. Fibrous loam, peat-mould, and peat, in equal proportions with a little coarse, well-washed sandstone grit, make an excellent compost for Crotons, and when they are well established, manurial stimulants can be added in the form of liquid manure; this is better than adding solid manure to the soil when potting. The chief points requiring attention in the culture of Crotons are ample heat, full exposure to light, and good ventilation; low, light, span-roofed houses suit them best, and if the glass be stippled with whiting—or, better still, a thin piece of tiffany be suspended an inch or two below the glass to intercept the direct rays of the sun, the leaves will become all the better coloured. One of the best cultivators of Crotons with whom I am acquainted plunges the pots in a bark bed when he starts his plants in spring, and thus treated

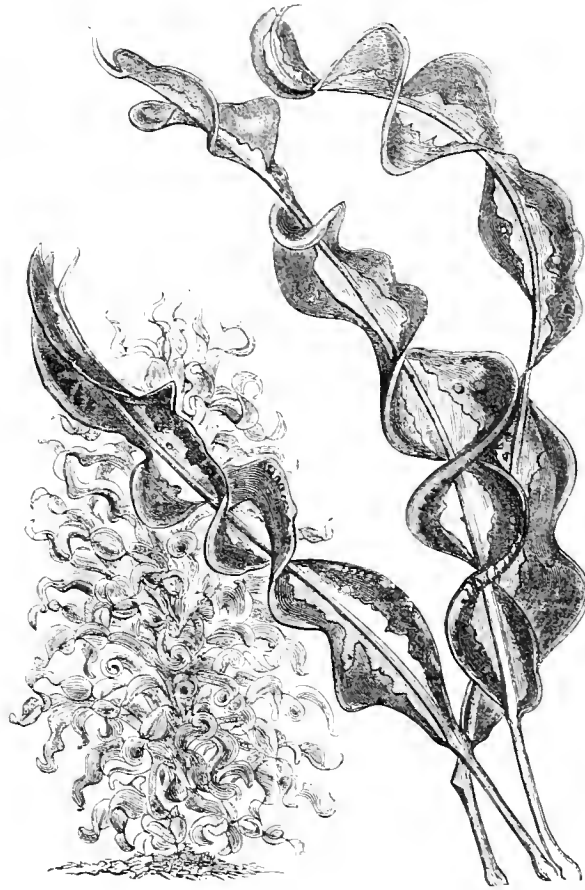
they grow most luxuriantly; he also turns them regularly round once or twice a week, so as to give every leaf an equal share of direct light. If the house in which Crotons, *Draecenas*, and similar plants are grown be well ventilated and kept moist, it is next to impossible to give them too much heat when growing, for it is useless to try to grow good Crotons under cool treatment. Occasional sponging is beneficial, and a sharp eye must be kept for thrips, scale, and mealy bug. The extreme variety observable in the leaves of Crotons deserves attention. The earliest form of leaf, as shown in *C. pictum*, is oblong lance-shaped, or Laurel-like; the next strikingly distinct leaf was that of *C. angustifolium*, a linear, drooping leaf, with a more or less undulating margin; then came narrow, lance-shaped leaves, with undulated edges, as in *C. undulatum*; and broad, smooth, Aucuba-like leaves, as in *C. maximum* and *C. Hookeri*. These were succeeded by interrupted linear foliage, as in *C. interruptum* and others; linear leaves twisted corkscrew fashion, as in *C. spirale*; and convo-

lute or ram's-horn-shaped, as in *C. volutum*; and the latest additions are varieties with long, broad, regular or irregular, strap-shaped leaves, or with the halberd-like or trilobed foliage. New varieties of Crotons are readily obtainable from seed, but as the male and female flowers are borne on different flower-spikes, it follows that cross-fertilization is necessary in order to secure seed. Any two good varieties may be crossed, and the result is sure to be interesting, but with the great variety now at command, cultivators generally will be satisfied with the sorts already in cultivation. B.

CYCLAMENS WITH SMALL FLOWERS.

WHILST agreeing with many of "M.'s" remarks (see p. 42) upon the culture of the Cyclamen, I must admit that I differ widely from him as to the cause which he assigns for the im-

perfect manner in which the plants mentioned at p. 3, vol. XI., have flowered. With respect to the maturation of the bulb, I fail to perceive much difference between "M.'s" practice and the old system once considered indispensable (but now quite discontinued) by those who grow Cyclamens extensively, viz., of drying off the bulbs after flowering. The exposure of the Cyclamen at any period of its existence to strong solar heat and an arid atmosphere appears to me to be subjecting it to a treatment quite foreign to its nature, and which I feel convinced is not at all necessary. That a certain amount of light and heat is indispensable for the proper development and ripening of vegetable tissue is undeniable, but the amount required is comparative, and varies according to the formation and natural habit of the plant. The amount of exposure to air and sunshine which is absolutely indispensable for some things would prove sudden death to others. It is the nature of some plants to mature and perfect themselves in almost perpetual shade, whilst others can endure but a very slight seclusion from the sun. With respect to the Cyclamen, the result of my own experience always tended to convince me that as soon as a plant has discontinued flowering, it should be removed to a cool situation, so that the fibre of the



Croton tortile.

root should never be allowed to perish, and the foliage be kept as green as possible. In shading, to preserve the beauty of the flowers, we do not necessarily deprive the plant of all sunshine; shade should not be applied before it is absolutely necessary, and removed directly the great glare of the sun is past. The plants in this way will obtain quite as much light and heat as is required to perfect the bulb. The removal to a cool, shady situation does not imply that they are to be completely secluded from the rays of the sun. If placed in frames on the north side of a wall or screen, for instance, they may receive a considerable amount of air and sunlight without being subjected to the fierce heat and drying air, which, I maintain, is not only unnecessary, but likely to prove injurious to them. "M." says that unless the bulbs are properly matured by exposure to sun, the flowers are not in them, and therefore cannot be brought out. Now, the plants in question are stated to be extremely well set with bloom; this fact would of itself be sufficient to prove that the bulbs had been sufficiently matured

and the plants fairly managed during the summer months; if, therefore, a test of maturation be the appearance or otherwise of bloom-buds, then in this particular case we must directly conclude that the plants have in this respect been properly treated, and will have received the required amount of air and light to perfect and ripen their growth. I am thus constrained to believe that the mischief lies in some error in treatment after the plants were set with bloom, or when placed in their winter quarters. "M." rightly observes that a stagnant atmosphere and a forcing heat produce injurious effects upon the Cyclamen; it is, in fact, one of those winter-flowering plants which, in garden phraseology, "will not stand driving."

Cyclamens may be had in bloom in November, December, and January with flowers quite equal in quality to those which come in the more favourable spring months. This is easily accomplished, but not by forcing; it is only by timely attention in the early summer months that this result can be achieved. If a plant be removed to a cool frame in April, and carefully attended to with water, so that the foliage does not perish, it will begin to form its bloom in July, and by the middle of August a one-year-old bulb will in all probability have a hundred well-developed flower-buds on it; if that plant be placed during September and the early part of October, where it can be thoroughly exposed to sun and air, never putting on the sashes unless the rains are very heavy, or the sun exceptionally hot, when a slight shade will even then be beneficial, it can be placed upon a shelf in a light airy house towards the latter end of October, where, with but a slight amount of artificial heat it will come well into bloom in December; and if, in other respects properly treated, there will be nothing to complain of with regard to the quality of the flowers. Plants may be had in ten or twelve months from the seed with some three or four dozen blooms on them, but it is only by giving them a free root-run and a moist, growing atmosphere that they can be so obtained. When, in their case, does maturation take place, for at the time when they should be maturing and ripening they are in a small growing condition? I prefer to mature and harden a Cyclamen in September, for by that time they should not be just starting, but should have their growth already perfected, and at that time much light and air are indispensable. I should be inclined to say that if "J. E.'s" Cyclamens (see p. 3) did not get sufficiently exposed to air and sunshine, it would rather be after having completed their growth in the autumn than before starting afresh into growth in the summer. As to exposing the corm itself, I have never found that that treatment exercised any beneficial effect upon the flower. I have tried them completely buried, partly covered, and with just the base on the soil, and have never found much difference in the amount or quality of the bloom produced. I prefer, however, to leave the corm half-way out of the soil, as it renders them less liable to damp, and at the same time admits of the production of fresh roots from the corm, which they will, if healthy, make during the flowering period, and which function, it is needless to say, materially aids them. In conclusion I will briefly summarize my treatment of bulbs one year and older:—In April they are placed in cold frames and shaded from the great heat of the sun, and sheltered from the heavy rains, drawing off the sashes early in the afternoon, and leaving them off all night and on dull days. This treatment is continued with slight variations during the summer months; in July they are looked through, shifted, or just shaken out and re-potted as they may seem to require it. As they begin to grow they are thinned out and placed where they can have plenty of room and air, and where they can, as mentioned previously, be thoroughly exposed in September. At this time, as they should have well-developed, luxuriant foliage, they must on no account lack moisture. The pots being pretty well filled with root, they will in dry weather require well attending to in this respect, and as the blooms are now in course of rapid development, insufficient moisture will alone suffice to produce undersized and deformed flowers.

Byfleet.

JOHN CORNHILL.

—As we happen to have a fine lot of healthy, well-flowered Cyclamens, and as the treatment which they have received seems different from that recommended by some of your correspondents,

and yet very simple, I may be allowed to describe it? We choose a border facing the north, and prepare it by mixing with the soil (common garden soil) some leaf-mould and sand, or road-scrappings; about the middle of May the bulbs (one and two-year-old ones) are shaken out of the pots and planted in that 9 in. apart. If the weather be very dry, a few waterings may be necessary; but they soon take care of themselves. Of 200 bulbs treated in this manner there was not one failure; all made strong, healthy plants. The only care during the summer was to keep them free from weeds, of which the road-scrappings gave us rather an abundant supply. The plants were taken up the first week in October, potted, and placed in a cold frame; afterwards they were removed to a cool greenhouse, in which they were ranged on a shelf close to the glass, and from time to time a dozen or so were removed and placed in a little heat. Under this treatment ever since Christmas there has been a fine display of large, well-developed flowers and foliage, all, indeed, that could be desired, and a promise of plenty more for some time to come.—J. M., *Wimslow.*

LATE-STRUCK POINSETTIAS.

Is it necessary that this plant should be arrested in the mid-season of its growth by treating it to a cold temperature, as I see it recommended by several growers, in order to flower it well or to keep it dwarf? Why not strike the cuttings late, keep them in small pots, and push them on with a genial stove temperature till they flower? This seems to me to be the best way to get good bracts and fine foliage, and the foliage is hardly less ornamental than the bracts, but it falls if the plant gets a check. All our Poinsettias were struck from July till October; none of them are in larger pots than 5-in., and those that struck first are between 2 ft. and 3 ft. high, the next in size and the smallest, which are in 4-in. and 3 in. pots, are only a few inches high; one I measured to-day was just 2 in. high, and had a good flower on it. I imagine that the natural habit of the plant is to make a rapid growth, and consequently fine foliage and then flowers, after which it goes partially to rest during the dry season, and this is the way it should be treated. There should be no potting from the time the cutting is struck till the plant flows.

Sheffield.

J. S. W.

Wintering Bedding Lobelias.—Complaints are often made as to the difficulty experienced in preserving stock of bedding Lobelias through the winter. Frost does them little mischief under glass, but damp kills them wholesale. The usual practice is to cut over a quantity of the old plants in autumn, then to lift them into pots and keep them on shelves in a cool house. Two causes of damping off are the roots not being established, and old wood being left in the plants that inevitably damps and decays. This can be corrected by having a quantity of plants kept in pots during the summer and trimmed over early, so that a renewed growth may be had ere the winter sets in. My own practice differs from that usually adopted, as I plant them out in a bed of soil in a cool house early in the winter, lifting plants that have been previously cut over, and that have already shown heads of good healthy foliage. These plants, instead of damping or developing attenuated foliage, throw out root-lets at every shoot, and now I could from my stock of *Blue Beauty* alone make 1000 well-rooted plants without taking a single cutting. Presently I shall prick them out thickly into frames, and they will make a stock of robust early blooming plants far more satisfactory than can be had from cuttings struck in heat. Any one having a cool-house may grow bedding Lobelias through the winter with success.—A. D.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Continuous Flowering of *Eucharis amazonica*.—This has been observed before, and I attribute it to the difference in the age of the bulbs, for I do not think that the same bulb flowers twice within a short period. Some of our plants which flowered in August and September are blooming freely again, but the flowers, so far as I can see, are produced from other bulbs, as when the plants were potted in spring, roots of various sizes were crammed into the same pot.—J. S. W.

Evil Effects of Pruning *Bougainvillea speciosa* in Winter.—Many fail to bloom this through cutting it back in winter like *B. glabra*. It should be borne in mind that *B. speciosa* blooms in March on wood of the previous year, whereas *B. glabra* flowers in terminal clusters on the young wood. It succeeds well in an intermediate temperature.—W. H. D.

***Cordylone vivipara* and *Russelia juncea* as Basket Plants.**—I can fully endorse all that has been said (see p. 61) as to the suitability of *C. vivipara* as a basket plant. It is much grown in rooms in Germany, as it withstands a dry atmosphere much better than most plants. I have also found *Russelia juncea* answer the same purpose perfectly. When well grown, these two plants contrast well with each other, the foliage and manner of growth of each being very distinct.—JOHN CORNHILL, *Byfleet.*

THE FRUIT GARDEN.

FRENCH MELONS AND THEIR CULTURE.

THE Melon of which the annexed is a representation seems to me to be one of the Cantaloup Prescott family—possibly Hâtif à Châssis, or Fond Blanc de Paris. "Each is good, but both are best." All the Cantaloup Melons resemble each other, but vary greatly under different kinds of treatment. Mostly every gardener in France, as here, owns a variety of Melon, and their flavour depends entirely on the time when the fruits are removed from the plant—not too soon before they are ripe, and not too late after they are ripe. French gardeners never leave a Melon to ripen on the plant. Half an hour's sun after they begin to have a ripe smell ruins the flavour of a Melon, and hence they are cut just before they begin to smell ripe; and only experienced cultivators know when to gather them at the right time. There is no doubt that in this country Melons are left too long on the vines after being ripe, and hence their occasionally bad flavour. In fruit shops, too,



Cantaloup Melon of the Paris Markets.

they are exposed in windows, and their flavour is destroyed in a short time. My opinion is that the Cantaloup Prescott is a fine Melon when well grown and gathered at the proper time. It is remarkably refreshing without being too sweet and sickening, as some of the varieties in this country are.

Floors Castle, Kelso.

H. KNIGHT.

LATE GRAPES.

MR. WILDSMITH (see. p. 45) says "that so much has been said and written about Grapes and Grape-growing, that it is difficult to say or write anything new upon the subject." This is no doubt true, and yet, strange to say, Grape-growers are still far from being agreed as regards many matters connected with Vine culture. For example, the advantage or otherwise of inside borders, the desirability of supplying heat to the roots, and where this is deemed necessary how best to accomplish it, are still matters on which opinions differ. At present, however, I merely wish to inquire as to what varieties of Grapes growers generally consider the best for furnishing a late supply of fruit, and with the view of aiding the matter I will give the names of a few of the sorts which I consider to be the best for this purpose, placing them in accordance with their order of merit. I have therefore no hesitation in placing Lady Downes Seedling first upon my list, and I am pleased to see that my opinion in this instance is in accordance with that of Mr. Wildsmith. Taking all points into consideration, there can be little doubt that this variety ranks first among late Grapes. This would not, however, be the case if Mrs. Pince's Black Muscat could be induced at all times to colour properly, as when it does this, and even sometimes when it does not quite attain the desired colour, its quality is superior to that of Lady Downes or to that of any other late black Grape, except the Muscat Hamburg, which is perhaps the finest flavoured of all black Grapes. This variety, however, cannot be recommended as a late keeper. I am inclined to attribute the want of colour in Mrs. Pince in many cases to overcropping, and I believe in the majority of instances

it will be found that if a healthy plant of this variety be allowed to carry only about two-thirds of the weight of fruit which an equally healthy plant of the Lady Downes or Alicante varieties would ripen and colour to perfection, it will generally be found that under these conditions the fruit of Mrs. Pince will attain a colour equal to that of either of the other sorts named. It has been thought by some that Mrs. Pince requires a somewhat higher temperature than is usually given to such sorts as the Alicante and other late varieties. This may be the case, but as far as my experience goes in the matter, I have found it ripen and colour as well as could be desired in the same house as the Alicante and Lady Downes, and where very little fire-heat had at any time been applied. As has been stated, I place Lady Downes first upon my list of late or long-keeping Grapes, Mrs. Pince's Black Muscat second, the Black Alicante third, and West's St. Peter fourth. There are, I believe, no varieties of white Grapes which, for late-keeping properties, are equal to the black kinds, although for this purpose such sorts as the Raisin de Calabre and Trebbiano have been recommended. These, however, seldom keep so well as the Muscat of Alexandria, which Mr. Wildsmith says will keep with care if well ripened to the end of March or April. This I must admit I have never been able to accomplish; indeed I feel thankful when Muscats keep in good condition until the end of January, and this they usually do. P. GRIEVE.

Culford Hall, Bury St. Edmunds.

STRAWBERRY CULTURE IN THE MIDLAND COUNTIES.

MUCH difference of opinion exists among cultivators as to which is the best system of growing Strawberries. Some contend that it is best to plant in deeply-dug and heavily-manured soils, while others advocate shallow soils with a liberal supply of manure. Some cultivators, moreover, contend that it is best to destroy the old beds and make fresh ones every year; others plant in autumn, and pinch off any flowers which may appear the following season, with the idea that plants thus treated will gain extra strength, and make up for the loss of one season's crop. A strong clayey loam suits Strawberries better than light land, and in such soils they will prosper for a number of years without exhibiting signs of debility. All runners should be cut away as they appear, and a top-dressing of rotten manure should be given them during the winter. The first point is the preparation of the soil; if this be not properly attended to no after management will give satisfactory results. The digging or trenching of the ground should, if possible, be done late in the autumn or early in spring, and should not be put off, as is sometimes done, until new plantations are about to be formed. Select the ground intended for the crop early in winter. We have three plantations, and we make one bed and destroy one (the oldest) each season. Immediately a bed is destroyed, the ground thus made vacant is immediately dug and sown with Turnips which are cleared away soon after Christmas, and the ground is then prepared for the next Strawberry crop; but previously to the Strawberries being planted the ground will have produced a heavy crop of Potatoes. These are cleared off early in August. The same process is gone through each year, and thus a year elapses from the time of destroying one plantation and planting another on the same ground, and in the meantime we take two other crops from the ground, which with the manure that is applied brings it into good condition for the Strawberries. The reason for occupying the same ground is that we do not wish to use it any more than we can possibly help for culinary crops. When the weather is tolerably dry we trench the ground two spits deep, but do not choose very frosty weather for the operation, as it is a bad practice to bury frozen earth. When it is desirable to plant a new crop of Strawberries immediately the ground has been cleared of the old one, it is a good plan to work in a quantity of fresh soil while trenching. We trench the ground as follows:—Take out a trench 2 ft. wide and two spades deep at one end of the quarter, and the soil taken out is wheeled to the opposite end to fill up the last trench. We then measure the width of another trench and mark it off with the spade. The top spit is then thrown into the bottom of the trench, and the bottom spit of the second

trench is put on to the top spit, thrown into the first trench, and so on to the end. By this process a portion of fresh soil is brought to the surface in the place of that exhausted by the previous crop. When the trench is open we place at the bottom 6 in. or 8 in. in thickness of fresh stable manure, and when the first spit of the next trench is thrown on to it we introduce another good layer of manure, placing the coarse material at the bottom and the decomposed nearer the surface. The rough manure becomes decayed before the roots get down to it. Having finished the trenching, the surface is left as rough as possible, in order to expose it to the pulverizing and fertilizing influences of the weather until the following spring.

The ground having been properly prepared, the young plants, consisting of well-rooted runners, may be put out. In the selection of runners, care should be taken to choose only those that are stout and healthy, with a good plump bud in the centre, and they must be from vigorous fruiting plants. This is better than taking plants at random, and will invariably give more satisfactory results. In order to have the runners established as soon as possible, they should be layered in small pots, filled with rich loamy soil and a little rotten manure. They will make rapid progress in this rich compost, and as soon as they are fairly rooted, which will be in two or three weeks, if never allowed to become dry, they may be severed from the parent plants, and planted in their permanent quarters. They must not, under any circumstances, be allowed to remain in the pots until they become pot-bound; if the ground be not ready for them they had better be shifted into pots a size larger, rather than they should receive any check in that way. The planting must be done with great care; if the soil be light it must be made firm. Some, after digging and preparing the beds, tread or roll them previous to planting, as if for Onions; but, if the ground be tolerably stiff, this treading and rolling will be unnecessary. In planting, the soil must be made firm about the roots. The method of planting which we practise, unless we wish to plant so many rows on a limited piece of ground, is to plant them in double rows 2 ft. apart, and every alternate row 2½ ft. from each other. Thus treated a little more space is left between every other row to walk on without treading on the fruit. We place each plant 2 ft. asunder in the rows in half quincunx order. The style of planting is quite a matter of fancy, but whatever plan may be adopted the plants must have plenty of space in the rows. Some cultivators, anxious to make the most of their ground, plant at 1 ft. apart in the rows, and after the first crop remove every alternate plant. This, no doubt, is a quick and profitable mode of culture. Others I have known to take a crop of Cauliflowers off the ground, and when it was quite hard to scoop out some hollow spaces 1 ft. in diameter and pour into each 3 or 4 gallons of liquid manure from the cesspool. The next day the ground has been levelled, and in each soaked place three plants have been planted. Strawberries thus treated have grown away freely, and the next year produced an excellent crop of fine fruit. On the approach of winter we mulch the beds all over with short rotten manure about 2 in. thick. The manure is first put down in little heaps, and then the beds are gone over, holding the leaves of the plant in one hand and spreading the manure round them with the other. This is allowed to remain until spring—say about the first or second week in April—when it is knocked about with a Dutch hoe and the straw raked off, leaving that which is most rotten. The manure must not be allowed to remain packed round the crowns; on the contrary, the rows must be gone over, and the stools cleared and left free. Keep the plants free from runners and the ground free from weeds; it is also important, when the plants are in bloom, to give them a good supply of manure-water. As soon as the plants are in bloom, some protecting material should be placed beneath the trusses to prevent the fruit from being injured by heavy rain; some use clean straw, others litter from the stable, and some who cannot obtain either use Grass mowings. Fine fruit may be expected the first year after planting; the crop may be a little the heaviest the second year, but we obtain the finest berries the first season. One other question remains to be discussed. Is it right to dig between the plants? On this point I say "Doubt."

As regards varieties, the best method to adopt is to ascertain what kinds suit the soil which one has to cultivate, and this being accomplished, discard the sorts that are unsuitable. Eclipse is a most prolific, large-fruited variety. Sir J. Paxton is also a fine variety; it is of a rich glossy colour, sometimes cone-shaped and sometimes cockcomb. Dr. Hogg is much finer than the old British Queen, from which it was raised, and is one of the best Strawberries grown. Vicomtesse Héricart de Thury deserves all that has been said in its favour; it is very hardy, a most abundant bearer, and succeeds well on most soils. James Veitch is of more recent introduction; it produces fruit of exquisite beauty, colour bright vermilion, with a pleasant Apricot flavour. Duke of Edinburgh promises to be very good, fruit of average size, possessing a most delicate perfume. The above are what we grow, and for heavy cropping Eclipse and Vicomtesse Héricart de Thury are perhaps the best. R.

The Setting of Muscat Grapes.—Many complaints are often heard with respect to the difficulties now attending the perfect setting of this the queen of Grapes, and many ways and means have from time to time been suggested to accomplish this much-desired object. Many resort to syringing the bunches when in flower; others believe in the slamming of doors and sashes, and shaking the Vines; but probably there is no method so simple and effectual as drawing the hand gently down the bunches when in full flower. The hand should first be covered with pollen from free-setting kinds, such as Hamburga, Alicante, &c., and if this be done a few days in succession, it is probable that almost every berry will become properly fructified, swell rapidly and evenly, and ripen well.—S.

Raising Nut Trees.—The best method of keeping Nuts for seed is to let them get quite ripe before gathering; then partly dry them and mix them in dry sand, put them in thick, mouse-proof boxes, and bury them in sand on a dry bank. In spring select a rich, loamy soil well pulverized, and drill in the Nuts far enough apart to allow the trees some space to grow and room to cultivate between the rows. As soon as the young plants appear the soil should be loosened around them frequently, which will effectually prevent weeds from growing, as well as hasten the growth of the plants. After the second year's growth, according to the "Home Journal," it might be well to clip off the ends of the vigorous side branches, thus sending the vigour of the tree into the main stem. Do not transplant them until they are large enough to be staked, or until they are three or four years old. The ground, if intended for an orchard, should be subsoiled, and the holes for the young trees dug deeply and fertilized with a little old manure, unless the soil is very rich. After the first year's growth, in order to make handsome and fruitful trees, it is necessary to use the knife freely.—"Home Journal."

Apple Stocks.—What is the difference between Crab, Paradise, and Doucin Apple stocks?—C. [Wild English Crab stocks are seedlings obtained either by sowing pips of fruit gathered from the hedges and woods, or by hillock layering. This kind of stock is that best suited for standard or orchard trees. The Paradise stock is a low-growing Apple, wild in Russia and the Caucasus, and its merits as a stock for bush or pyramidal trees consist in its short, fibrous, wig-like roots, and in its finely-grained and slender stem; hence it exerts a restrictive influence, and induces fertility at a much earlier date after grafting than either the Crab or Wild Apple stock. The Doucin is a variety of Apple long grown in France and Belgium, and, like the Paradise, it has a restrictive influence on the growth of the scion; its use as a stock, however, is mainly due to its easy propagation either by means of cuttings or layers.]

Fruit Trees Branching Low.—Let fruit trees branch low. Why go aloft when one can pluck as good fruit "off a step ladder?" Secondly, in low-headed trees the stem is shaded from the hot sun, the surface soil is maintained cool and moist, and the pruning can be kept better in hand; lastly, the recent vigorous wind-storm fully demonstrated that the fruit is not so likely to get blown off. But, says some one, "How can I pasture my orchard?" That explains the whole objection to this system; some cultivators begrudge the ground their trees stand on; they want to make their orchard carry double—a good crop of Grass and another of Apples. Try one, says an American paper, and pay attention to it, and see what returns are obtained at the end of the season.

Forking among Strawberries.—Will Mr. Baines tell an old Strawberry grower how (as recommended, see p. 76) he is to fork his beds over a few inches deep without disturbing the roots? This information is scarcely orthodox. That veteran Strawberry grower, Mr. Myatt, would shake his head and whisper "won't do."—R. S. C.

THE FLOWER GARDEN.

THE HONEYSUCKLES OR WOODBINES.

By GEORGE GORDON, Author of "The Pinetum."

Most botanists consider the Caprifoliums as only a section of the genus *Lonicera*, but they are easily distinguished by their climbing habit of growth, and in the berries being solitary and three-celled while young, but when matured usually one-celled. The Honeysuckles are free bloomers, mostly very fragrant, some evergreen, and nearly all hardy; they thrive freely in any good garden soil, and form beautiful objects for training over arbours or against posts or walls, and flower freely during the summer and autumn months; the leaves are mostly ovate-pointed, opposite, entire, sometimes connate towards the ends of the shoots; the flowers are long, tubular, ringent, mostly disposed in terminal whorls, and generally very fragrant. They are robust climbers, and are natives either of Europe, Asia, or America.

Common Woodbine (*Caprifolium Periclymenum*).—The Common Woodbine or Honeysuckle is a native of the middle of Europe, growing in hedges, groves, and thickets, and is found in quantities in Britain and similar situations. The leaves are deciduous, ovate-obtuse, tapering to the base, with the upper surface bright green and smooth, but they are sometimes downy when young and glaucous



Late-flowering Dutch Honeysuckle (*C. P. floribundum*).

beneath; the flowers are in terminal clusters, long, tubular, and externally deep red or rich yellow, and produced from June to August: berries nearly globular, red, and accompanied by permanent bracts. There are three or four distinct forms of this kind, one, the Late-flowered (*serotinum*), has smooth-branched and reddish flowers, which are produced later in the season than the ordinary form; it is known in gardens as *C. P. floribundum* or the Late-flowering Dutch Honeysuckle, and produces a greater number of flowers in each cluster than any of the other varieties.

Dutch Honeysuckle (*C. P. helgicum*).—This has the lower leaves somewhat cordate, and the upper ones connate; they are oblong-ovate, of a bright green above, but pallid and glaucous beneath, and on longish foot-stalks; the branches are of a violet colour with a glaucous bloom. It is a native of Corsica, the south of France, and Italy; the flowers are large, cream-coloured, and mostly in heads of six, and very fragrant. It is generally known in collections as the Dutch Honeysuckle, and may be trained to a single stem and formed into a bush, which in the wild sort cannot, the branches being too weak and trailing for the purpose.

Oak-leaved Honeysuckle (*C. P. quercifolium*).—This variety has the leaves sinuated like those of the Oak, and of which there is a form with the leaves marked near the margin with yellow. It is found in England and Germany.

Goat's-foot Honeysuckle (*C. perfoliatum*).—This kind forms a fine, robust climber, with deciduous, obovate, acutish-glaucous leaves, the uppermost ones being broad, and the lower ones distinct and somewhat stalked; while two or three of the upper pairs are united, and form a concave cup just below the flower-heads. The flowers are disposed in one or more axillary, capitate whorls 2 in. long, yellowish, with a bluish-coloured tube, and very fragrant. The berries are elliptical and of a tawny or orange colour, and ripe in September. It is a native of the south of Europe, in woods, hedges, and thickets, and also of Britain in like situations, but particularly



Belgian variety of Dutch Honeysuckle (*C. P. belgicum*).

in chalky districts. It flowers in May and June. It is the *Lonicera Caprifolium* of old writers, and is frequently confounded with the Common Woodbine in collections.

Italian Honeysuckle (*C. etruscum*).—The leaves of this species are deciduous, obovate, obtuse, and pubescent; the lower ones are on short petioles, the upper ones connately-perfoliate, acute, and glabrous. The flowers are disposed in verticillate heads, with usually about three heads on the top of each branch, glabrous, sweet-scented, purplish outside as they expand, and yellowish-white inside, but finally change to yellow before they wither. It is a native of the south of France, Sicily, and Dalmatia, on hills, and flowers in May and June.

Minorca Honeysuckle (*C. implexum*).—This is quite a glabrous species with evergreen, glaucescent leaves, the lower ones being oblong and distant, the uppermost ones connate, and forming a hollow, roundish cup. The flowers are disposed in capitate whorls, long, tubular, and ringent, and are produced from July to September. It is a native of the Balearic Islands and Sicily. The flowers are purplish before expansion, but becoming paler on the outside as they expand and whitish inside, finally changing to a yellow before they fade.

Yellow-flowered Honeysuckle (*C. flavum*).—This species is quite glabrous with rather large, ovate leaves, sometimes glaucous beneath, the upper ones are connately-perfoliate and frequently cup-shaped; the flowers are large in terminal verticillate heads, rather ringent with oblong-obtusate lobes, very fragrant, and bright yellow when first they appear, but as they fade become orange-coloured. It is a native of South Carolina and New York, and blooms in June and July. This kind is frequently named *C. Fraseri* in collections.

Downy-leaved Honeysuckle (*C. pubescens*).—The leaves are deciduous, broad, ovate-elliptic, on short foot-stalks, pubescent, and ciliated on the margins, glaucous beneath, with the upper ones connately-perfoliate; the flowers are disposed in racemes, composed of verticillate heads, and the corollas beset with glandular pubescence, and of a yellow colour. It is a native of Vermont, Massachusetts, New York, and Canada. This is the *Caprifolium Goldii* and glaucum of some writers, and is considered by Dr. Torrey as only a variety of *C. flavum*, but it is much harder than that kind.

Douglas Honeysuckle (*C. Douglasi*).—The leaves of this handsome species are from 4 in. to 6 in. long, deciduous and deep green on the upper surface; they are oval, acute at both ends, stalked, glabrous, ciliated on the margins, tomentose on the outside, with the upper ones connate; the flowers are disposed in capitate whorls, two-lipped, deep orange red and scentless; the corollas are pubescent. It is a native of the western coast of North America, and flowers in July and August.

CAPRIFOLIUM CILIOSUM is considered as only a variety of this species, with yellowish flowers, and a less robust habit of growth.

Small-flowered Honeysuckle (*C. parviflorum*).—The leaves of this kind are elliptic and sessile, the lower ones somewhat connate, the upper ones connately-perfoliate, glabrous, and very glaucous beneath; the flowers are yellow, very small, and disposed in verticillate heads; the corollas are glabrous, with the tube gibbous at the base on one side. It is a native of North America, from New England to Carolina, and frequent in Canada; also from the Hudson's Bay to the Rocky Mountains, and flowers in June and July. In the Canada plant the flowers vary in colour, and the leaves are more or less downy. Most botanists consider it as only a variety of *C. Douglasi*, but it is easily distinguished by its short flowers.

[Synonyms—*C. bracteosum*, *C. glaucum*.]

Western Honeysuckle (*C. occidentale*).—The leaves are deciduous, oval, almost sessile, glabrous, ciliated on the margins and glaucous beneath; the upper ones are connately-perfoliate and rather large; the flowers are disposed in verticillate heads, and longer than any other of the North American species; the corollas are of a deep orange-red, glabrous, with an elongated tube, which is gibbous above the base and the divisions nearly equal. It is a native about Fort Vancouver, on the Columbine, and flowers in June and July.

CAPRIFOLIUM CILIOSUM appears to be a form of this kind, with the leaves somewhat more downy and distinctly ciliated on the edges. This will be found a very handsome plant for training against a wall.

Evergreen Trumpet Honeysuckle (*C. sempervirens*).—This species has sub-evergreen, obovate or ovate leaves, glaucous beneath, deep green above, and quite smooth; the upper leaves are connately perfoliate, about 2 in. long and 1 in. broad; branches brown and rather slender; the flowers are nearly naked at the top of the branches, and in whorls; the tube of the corolla is ventricose on the



Evergreen Trumpet Honeysuckle (*Caprifolium sempervirens*).

upper side, and of a beautiful scarlet colour outside, yellow inside, 1 in. long, and scentless; fruit reddish-yellow, and ripe in September. It is a native of North America, from New York to Carolina, in stony dry woods, and flowers from May to August. There are three varieties of this kind, viz., *C. s. major*, with roundish leaves and larger flowers; *C. s. minor*, with oblong leaves, acute at both ends, and much smaller flowers; and *C. s. Browni*, which has larger flowers of a brighter colour than those of the species, the latter a seedling variety raised several years ago by the late Mr. Charles Brown, of the Slough Nursery.

Evergreen Honeysuckle (*C. gratum*).—This is a vigorous-growing kind, with a woody stem and sub-evergreen leaves, which are obovate and glaucous beneath; they are reticulately veined and glabrous; the upper ones are connately perfoliate and the branches reddish-brown; the flowers are disposed in approximate whorls, the corollas are ringent, reddish inclining to scarlet outside and yellow inside; the berries are red and ripe in September. It is a native of North America, from Carolina to New York on the mountains,

rambling among rocks in shady, moist situations, and produces its flowers from June to September.

Tubular-flowered Honeysuckle (*C. tubulosum*).—The leaves of the Mexican Honeysuckle are evergreen, oval-oblong, obtuse at the ends, roundish at the base, and with the upper ones connately-perfoliate; the flowers are in close, verticillate, globular, terminal heads, and 1½ in. long, with an ample tube; the corollas are gibbous at the base, with equally divided lobes, and of an orange-scarlet colour. This kind has the habit of the scarlet Trumpet Honeysuckle, and is a native of Mexico, flowering in May and June. It is too tender for the open air, and requires to be grown in the greenhouse, where it forms a very pleasing object.

Bristly-leaved Honeysuckle (*C. hispidentum*).—This is a small, slender-growing plant, with small, cordate-ovate leaves, which are obtuse and glaucous beneath, sessile towards the ends of the shoots, and hispidly-pilose. The flowers are small, rose-coloured, scentless, and in pedunculate umbels; the corolla is smooth, two-lipped, which is longer than the tube. It is rather prostrate, from 2 ft. to 3 ft high, found on the north-west coast of America growing in woods, and flowering in July and August. This plant thrives best when planted in peat.

Kinds with Axillary Flowers in Pairs.

Chinese Honeysuckle (*C. confusum*).—The leaves are ovate, acute, rounded at the base, downy on both surfaces, as well as on the foot-stalks; the peduncles are axillary, two-flowered, longer than the foot-stalks, and disposed in something like a Thyrea at the tops of the branches; the segments are ovate and, as well as corollas, pubescent. The flowers are in axillary pairs, 1 in. long, two-lipped, and very profuse; they are whitish at first, but gradually change to a golden yellow colour; and hence it is called by the Japanese *Sin-Kadsura* and *Kinginka*, that is, the Gold and Silver flowered: it is a native of China and Japan, and flowers in July.

[Synonyms—*Nintooa confusa*, *Caprifolium japonicum*; Chinese names, *Nintoo* and *Sin-too*.]

Japan Honeysuckle (*C. japonicum*).—This kind forms a robust climber, with twining, flexuose, very hairy, opposite branches, bearing two leaves and two sessile flowers at the top of each. The leaves are ovate, acute, villose, pale beneath, and about 1 in. long, with the uppermost ones the smallest; the corolla is tubular, 1 in. long, red, white inside, villose on the outside, and very fragrant: it is a native of China and Japan, and flowers profusely from July to September.

[Synonyms—*C. flexuosum*, *Lonicera chinensis*, and *Nintooa japonica*.]

Long-flowered Honeysuckle (*C. longiflorum*).—This is a robust, twining plant, glabrous in every part; the leaves are oblong-lanceolate, shining above, pale beneath, on foot-stalks, and deciduous; petioles short, two-flowered, and about the length of the foot-stalks; the corollas are tubular, very long, filiform, and two-lipped; the flowers are at first snow-white, but finally change to a golden yellow colour: it is a native of China and Nepal, and flowers from July to September. It is tender, and requires the protection of a pit or to be kept in the greenhouse.

[Synonyms—*Nintooa longifolia*, *Caprifolium longifolium*, and *C. nepalense*.]

Short Flower-stalked Honeysuckle (*C. brachypodum*).—The branches of this kind are slender, flexuose, and very villose at the apex; the leaves of the variegated form are small, ovate-oblong, acute, glabrous, on short and villose foot-stalks, the upper ones the smallest, they are beautifully netted on the upper side with golden veins, and about 1 in. long; the flowers are few, almost sessile and axillary; the berries are distinct, globose, glabrous, pointed and black when ripe. It is a native of Japan, and flowers in June and July. This kind forms a slender climber or sub-prostrate plant, 3 ft. or 4 ft. high, and is the *Lonicera flexuosa* of Thunberg. It is very different from the one originally distributed by Dr. Siebold under the name of *C. brachypodum*, which bears a considerable resemblance to the *C. japonicum* (the *C. flexuosum* of Lindley and Leddiges). It has also been named *Lonicera nigra* by Thunberg, but is a very distinct kind from *L. nigra* of Linnæus, which is a European plant, with twin flowers and berries joined together at the sides. The variegated form is the *L. aureo-reticulata* of the nurseries.

Lonicera fragrantissima in Ireland.—In the neighbourhood of Dublin this sweet-scented Honeysuckle begins to flower on walls early in December, and continues a long time in blossom. Its period of flowering is greatly lengthened by skilful pruning, a kind of attention which it well repays.—*C. M. D.*

NEW HOLLYHOCKS.

THE production of new Hollyhocks in the south of England is now almost entirely confined to Mr. Chater, of Saffron Walden, whose seedlings are yearly looked forward to with much interest. The following are his new varieties for the coming spring, and as far as they have been seen in public they fully deserve all that has been said in their favour. First on the list is Achievement, an exceedingly pretty and distinct flower, the ground colour of which is rosy-red flushed in the centre with buff; it is of good size, full, and quite free from pockets. Crimson Queen is a fine deep hue of shaded crimson, and is considered by the raiser to be the darkest of all the crimson shades yet offered; it is large, full, symmetrical, and very attractive. It may be interesting to know that this variety forms a grand spike of flowers for show purposes. Her Majesty, a very large and bold flower of a bright rosy-red colour, also produces a fine spike, and its habit of growth is all that can be desired. Le Grand, a very fine flower, was offered in Mr. Chater's catalogue last year, but he was unable to supply it owing to insufficiency of stock. It is pale flesh-coloured with a salmon centre. This is probably one of the finest Hollyhocks yet raised. Vesuvius, glowing reddish-crimson, is considered by Mr. Chater to be the finest flower of its class, being excellent in form and striking in colour. Lastly comes Virgin Queen, a fine, bold, pure white-flowered variety, good in quality, and one which forms a long and noble spike. This, perhaps the best white Hollyhock yet raised, was awarded a first-class certificate at South Kensington in 1876.

The following is a selection of thirty-six fine Hollyhocks, well varied as regards colour and, generally of good habit of growth, viz., alba superba, pure white; Alfred Chater, mottled rose, flushed with carmine; Black Gem, glossy blackish-maroon; Competitor, deep rich purple; Conquest, deep crimson, very effective; Eclipse, bright rosy-red; Edward Speed, French white, suffused with deep purple; Eleanor, soft pale rose; Emperor, crimson-maroon; Enchantress, creamy-white, with a rosy-purple centre; exultum, rich shining maroon; Fascination, rosy-lilac, edged with silver; Fire King, bright glowing, reddish-crimson; Fred. Chater, pale yellow; Golden Drop, the deepest and brightest yellow, forms a remarkably fine spike; James Allan, beautiful bright plum; Jessie Dean, clear apricot, sometimes tinted with salmon; Joshua Clarke, brilliant cherry; Junia, pale primrose, suffused with purple, distinct and good; Leviathan, bright reddish rose; Lord Napier, deep glowing scarlet-crimson; Midnight, deep glossy maroon, very striking; Mrs. W. Chater, pale flesh, deeper in tint in the centre; Nonpareil, rich dark reddish maroon-purple; Nymph, white with purple base; Orange Boven, clear deep apricot; Perfection, delicate silvery flesh, a grand variety; President, yellowish but heavily suffused and edged with rose; Rose d'Amour, beautiful rosy-peach, an excellent flower; Ruby Queen, deep shining ruby; Triumph, very dark crimson; Tyrian Prince, rich crimson-purple; Victor, bright rosy-red; Walden King, bright scarlet, rich and striking in colour; Walden Queen, beautiful soft delicate flesh, flushed with rosy carmine; and Walden Primrose, clear, pale primrose.

The ravages committed by the Hollyhock disease deters many from attempting its culture, and it must be admitted that it is a sad sight to see a group of plants stricken with this fungus; it fastens on the leaves and robs them of all vitality, giving them quite a scorched appearance. In times of drought the disease appears to be more deadly in its operation than during moist weather, and this suggested to Mr. Chater that he should endeavour, by a careful system of culture, to make the plants as disease-resisting as possible. It has been the custom to plant out Hollyhocks in well-manured ground in April and May, planting on the ground-level. Now, Mr. Chater has large trenches dug out early in autumn in the form of Celery trenches, but broader and deeper, forking up the bottom, and mixing into the trench a good dressing of manure as the work proceeds. The soil thrown up roughly is acted upon by the frosts of winter, which pulverize it. When the season comes round for planting, the bottom of the trench is again forked over and the sides turned in, and then planted. By this method the Hollyhocks were kept moist and cool about the roots; they made good growth, and were robust and vigorous by the time drought set in. By means of the trench water could be given without fear of its running away, as is sometimes the case when the surface is hard and unbroken. Last season was the first time Mr. Chater employed the trench method, but the results were highly satisfactory; and he hopes, by perseverance and planting tholy in such trenches in exposed situations and by the employment of suitable mulching, to mitigate the effects of the disease.

Quo.

Mimulus moschatus Harrisoni.—This plant is a hybrid, obtained by Messrs. Harrison & Sons, of Leicester, who have ex-

hibited it at the principal floral exhibitions during the past year, and that it is a most valuable ornamental plant is in some measure attested by its having received first-class certificates from the Royal Horticultural and Royal Botanical Societies. The plant is a hybrid between the large-flowered Musk of our cottage windows and the spotted form of *Mimulus luteus*, known in gardens as *M. maculatus*; and when I say that it has the delicately-fragrant leaves of the first parent and the large showy flowers of the spotted *Mimulus*, some idea may be formed of its value as a plant for conservatory decoration, or even for the embellishment of the window garden, a fact which will render it peculiarly valuable to plant growers for market, as well as to amateurs and villa gardeners who grow their own flowers. As delicately perfumed as the Musk plant, it far exceeds it in its flowers, and possesses the additional merit of being more permanent, since strong roots can be forced at all seasons, and even during the winter months, when its fragrance recalls the days of early summer. Its culture is as easy as that of the common Musk plant of the cottager's window, and, considering its other points of excellence, it does not seem improbable that this variety will entirely supersede the other kinds when it becomes better known.—B.

Hybrid Pentstemons and their Origin.—"Quo" (see p. 69) attributes the origin of our hybrid Pentstemons, now so numerous and so lovely, to "careful seeding from such attractive species as *P. gentianoides*, *P. Cobæa*, and others, but these two mainly." That the so-called *P. gentianoides* (correctly speaking, *P. Hartwegi*) is the parent type no one will deny, and possibly *P. atropurpureus* and *P. atro-cærulescens* may have had some influence on the variations; but seeing that *Pentstemon Cobæa* had absolutely disappeared from cultivation before a single garden hybrid of this type was produced (the first and last plant I saw of the true species *P. Cobæa* was in the year 1844), it appears somewhat singular to associate its name with the origin of a plant, the earliest of whose variations date some eight or nine years subsequently. Undoubtedly the two species which I have just named had some influence in, as it were, breaking the specific type of *Hartwegi's* original plant; and the many variations are, in my opinion, to be attributed to careful seeding and judicious selection rather than to any direct and continued hybrid influence. I have tried for years to cross *P. Hartwegi* with *P. digitalis*—a species which belongs to the same section as *P. Cobæa*—but without the slightest result.—JAMES C. NIVEN, *Botanic Garden, Hull*.

Hybrid Echeverias.—Echeverias rank amongst the most popular of all succulent plants, being extensively used for edging the carpet beds and ribbon borders now so fashionable in public and even in private gardens. Some of the choicest species well deserve a place in every greenhouse, and among these *E. metallica*, *Peacocki*, *farinosa*, and *pulverulenta* may be named as distinct and handsome kinds. The two last are Californian species, their foliage being densely covered with white powder, which gives them a distinct character; and as this delicate covering enhances their beauty, care must be taken not to remove it by touching the leaves, or allowing water to fall upon them. *E. agavoides* is also a robust and desirable plant for pot culture. Two or three species have been separated under the generic name *Pachyphyllum*, but their consanguinity having been proved by the hybridiser, they may now be included in the genus *Echeveria*. Within the last year or two, Continental nurserymen have raised numerous beautiful hybrids, some of which, such as *E. imbricata*, *ovata*, *glauco-metallica*, *scaphylla*, *retusa-glaucia*, and *floribunda splendens*, are a great gain to our gardens.—F. W. B.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Drought-resisting Viola.—Has "T. S." (see p. 60) ever grown *Viola Blue Bell*? I venture to think that he would find this kind withstand any reasonable amount of drought. I have grown it for three seasons past, and have not yet known it to fail flowering continuously from March to November, notwithstanding that ours is naturally a dry, hot soil.—W. W. H.

Failure in Alternantheras.—It is said that we report our successes, but seldom our failures. I therefore make a beginning by saying that I have lost all my *Alternantheras*, and that I shall feel grateful to any kind friend who will send me some.—R. GILBERT, *Burghley*.

Early Primroses.—After reading Mr. Gilbert's note (see p. 60) respecting Dean's Primroses, I went to examine some plants that I had from the same source, and which are growing on a north border, when much to my astonishment I found two varieties in bloom and others throwing up their flowers. I can fully endorse Mr. Gilbert's recommendation of these Primroses, which are in every respect excellent.—W. W. H.

Cocoa-nut Fibre and its Uses.—This is largely used in market gardens situated near factories, where it can be got cheaply. It is usually spread on the surface of the ground as a mulching amongst bush fruits, &c. For plugging pot plants in, either out-of-doors or in propagating pits, it is invaluable; but as a manure in a fresh state, it should be cautiously applied.—J. G., *Henham*.

FLOWERS AND FOLIAGE.

THE judicious blending of flowers and foliage is one of the most important points to keep in view in connection with the arrangements of cut flowers either in bouquets or vases. Fern fronds are so generally used in such arrangements that they are thought to be in all cases necessary in order to insure successful results; but without questioning their value in many cases, there can be no question that a constant repetition of the same kind of edging or garniture will in a great measure neutralise that variety which constitutes the great charm of a bouquet. Many of our best flowers, such as those of Orchids and bulbous plants, must of necessity depend on extraneous aid in the way of foliage, but in cases it will be found that the leaves belonging to any particular flower used will be found to be the most appropriate and effective garnishing: Roses, for instance, always look best nestling among their own foliage. A half-expanded Rose, with buds and leaf entire, constitutes the best of button-hole bouquets, and a handful of Roses of various colours surrounded and intermixed with their own leaves is the best of all bouquets; or take a vase and fill it in the same manner, and no amount of fringing could add to its beauty or sweetness. The Lily of the Valley, another universal favourite, is exquisitely pretty when arranged along with its own leaves, but, robbed of them, it loses more than half its beauty. Violets are scarcely worth the name when culled without their leaves; and numerous other subjects might be enumerated which fail to give satisfaction when gathered without foliage. The saving in the case of the Ferns, too, should not be overlooked, for what with cutting for floral decorations, garnishing dessert, &c., a heavy drain is generally put on them during the winter season. A very valuable auxiliary in the way of greenery for mixing with cut flowers are the many kinds of scented-leaved Pelargoniums, Myrtles, Diosmas, &c., most of which, grown in a cold house, will last for a lengthened period after being cut; and many hardy subjects, such as Southernwood, Rosemary, &c., might be advantageously employed in the same way. The old-fashioned table bouquet, illustrated in your columns the other day (see p. 63), furnishes a good specimen of both a natural and graceful arrangement.

Henham.

JAMES GROOM.

Culture of Aphelexis.—This is a plant which is easy to grow, and which will last long in flower, and on that account it is well worthy of attention for conservatory decoration. Its flowers, even after being cut from the plant, retain their colours for a long time, therefore they are useful for the decoration of vases and for other indoor purposes. As regards the means of propagation, nothing beats a Cucumber or a Melon frame heated by fermenting material, say stable manure and leaves in equal proportions. The beginning of March is the best time to commence propagating the Aphelexis, cuttings of which are impatient of damp. The cuttings should be taken off with a sharp knife so as to avoid bruising them. They should then be inserted in well-drained pots in a mixture of silver sand and peat in about equal proportions; then place the pot containing the cuttings in another well-drained pot, but 2 in. wider at top outside measure. Fill the space between the pots with silver sand, which saves much time in watering. I find, indeed, that the less water the greater the chance of success. When the cuttings have become well rooted, they should be removed to a 4-in. pot, being careful not to disturb the roots more than can be helped. Well drain the pots, and use a mixture of broken brick and peat soil, to which has been added a little silver sand. I find broken bricks to hold water for a longer time than potsherds. After the young plants have become well established in 4-in. pots I should use the same compost as for the first potting, after which they should be potted in a compost of rough, turfy peat, broken brick, and silver sand. With a little attention to tying and training, young plants raised in this way will be found to give entire satisfaction. *A. hamilis* and *A. rosea*, as well as *A. macrantha* and *A. macrantha purpurea*, are the best kinds to cultivate. I should always use a galvanized wire trellis for *macrantha*, on account of its having long foot-stalks to the flower-stem and its being of a slender growth.—J. O.

Importance of Surface-stirring.—The persistent heavy rains of the past two months have had the effect of reordering the surface of most soils hard and close. It will therefore be more than usually necessary to stir vigorously between growing crops, an operation which should be done on the first favourable opportunity. The importance of this cannot well be overrated, especially after such weather as we have experienced this season.—JOHN CORNILL, *Brighton*.

PLATE LIX.

THE ROCKY MOUNTAIN COLUMBINE.

(*AQUILEGIA CŒRULEA*).

Drawn by Mrs. MILES, Bingham.

In a descriptive article (p. 384, Vol. IX.), wherein I enumerated the distinctive features of the more popular species of Columbine, special attention was directed to the beauty of the slender-spurred species from the Rocky Mountains under Nuttall's original title of *A. leptoceros*, of which I assumed the subject of the annexed figure to be but a mere variation; so beautiful, however, is it, and so fairly constant to the character indicated by James' specific title, *A. cœrulea*, and further, seeing that it has established itself in popular estimation under that title, there will, I think, for once in a way be no harm in waiving the right as regards priority, which the former title certainly possesses. A glance at the figure and a reference to the plate of the Alpine Columbine, which formed the illustration accompanying my article above alluded to, will indicate at once that in these two species we have well-marked types of the two sections into which the genus *Aquilegia* naturally divides itself. In the Alpine form we have the pendent blossoms, the short, incurved spurs, and the somewhat well-shaped form of the corolla; whereas here we have the flowers almost erect, long, slender spurs curved outwards rather than inwards, and a widely expanded corolla, and the individual blossoms measuring from 3 in. to 4 in. in diameter. The foliage is more acutely notched, and of a much more delicate texture than that of our common garden Columbine, and its flowering branches rarely exceed from 15 in. to 18 in. in height. Those who have cultivated it successfully speak in enthusiastic terms of its beauty, a fact amply corroborated by the very truthful representation of it given in the accompanying plate. Its natural habitat is in the ravines of the Rocky Mountains, where it enjoys a partial shade and a moist subsoil. These are two points which the cultivator would do well to bear in mind if he would realize its full beauty. Its naturally delicate foliage is very susceptible of injury from spring frosts and dry, cutting winds, and once nipped in this way, anything like free, vigorous bloom cannot be expected. Under favourable conditions, this plant produces seed freely, and may thus be readily increased, a far better plan than any attempt at division of the old roots. We are indebted to Mr. Thompson, of Ipswich, for the introduction of this lovely plant into European gardens. J. C. NIVEN.

Botanic Gardens, Hull.

Odontoglossum Londesboroughianum.—This in every way handsome and distinct Mexican Orchid has only quite recently flowered under cultivation for the first time in the Londesborough collection, and when exhibited at the Royal Horticultural Society's meeting on December 6 of last year, was awarded a first-class certificate as one of the best Orchids of the then waning year. It was imported by Messrs. Backhouse & Son, of York, nearly ten years ago, and is said to grow naturally in company with another charming and similar habited plant, *O. citrosimum*, the *O. pendulum* of some authors, and which it resembles in the drooping flower-spike and general contour of the flowers. Mr. Denning, who has the honor of being the first to bloom this graceful plant, informs us that the plant has a singular habit of shedding its foliage; so much so, that it might almost be called a deciduous plant, and that it grows well in a moderate temperature along with *Lycastes*, *Zygopetalums*, and *Cypripedium insigne*. The pale green, glossy, pseudo-bulbs are ovate and somewhat flattened, being produced along a creeping rhizome, and they are apparently one-leaved. The younger bulbs are sheathed at the base with the remains of the radical foliage. The plant as exhibited had a simple drooping spike, nearly a yard in length, bearing a dozen or more fully expanded flowers and prominent buds. The sepals and petals are enuculate, with crisped margins, the colour being greenish-yellow, with concentric chocolate brown bars. The reniform tip is more than 1 in. in breadth, and of a clear yellow colour. The column is bent, and is devoid of the anthers at the apex. The whole aspect, especially the colour of the plant, is like that of some of the larger-flowered *Oncids*, and in point of beauty it may well compare with *Oncidium Rogersi*, or its allies, *O. tigrinum*, *O. Marshallianum*, or *O. splendidum*.—B.



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HARDY FLOWERS IN LONDON GARDENS.

THE few sunny days with which we have lately been favoured have been the means of bringing into bloom many spring-flowering bulbs and other plants, the colours of which are much brighter than those produced a few weeks ago. Crocuses in variety are flowering profusely in Mr. Barr's grounds at Tooting, especially the sweet-scented, purple-flowered *C. imperati*, *C. versicolor*, and *C. vernus*; Snowdrops, too, of various kinds are very pretty just now, as are also the golden blossoms



Winter Aconite (*Eranthis hyemalis*).

of the Winter Aconite (*Eranthis hyemalis*), which is flowering in great profusion in Mr. Parker's nursery, in which may also be found a bed of *Scilla bifolia* well furnished with dark blue blossoms. The Siberian Squill (*Scilla sibirica*), too, is flowering freely in the Hale Farm Nurseries at Tottenham, where Christmas Roses may also be seen in great beauty. *Primula denticulata* is just opening its bright lilac flowers in warm sheltered places, and the common yellow and purple Primroses, together with their double varieties, are also thickly studied with fully expanded blossoms. The Spring-flowering Meadow



Spring Meadow Saffron (*Bulbocodium vernum*).

Saffron (*Bulbocodium vernum*) is likewise producing its purplish-violet-coloured flowers in great abundance, and several varieties of *Hepatica* are coming freely into bloom in Messrs. Rollisson's Nursery at Tooting. Many plants of *Yucca gloriosa* have during the past week opened blossoms on spikes thrown up some time back, but which, owing to the sunless weather which we have had, have hitherto failed to expand satisfactorily. A few plants of the Great Pilewort (*Ficaria grandiflora*), growing in a border in Ware's Nursery, are producing numbers of bright yellow blossoms from amongst compact masses of healthy foliage, and the great Strap-leaved Saxifrage (*Saxifraga ligulata*) is throwing up strong spikes of delicate flesh-coloured flowers in large quantities. The new white Mule Pink, to which attention was lately directed (see p. 62), is still producing quantities of flowers. S.

COTTAGE GARDENING.

Out-door Cucumbers.

THERE are various expedients that may be readily adopted by those whose means are limited to shelter and protect outdoor Cucumbers in their early stages, and many handy contrivances suitable for cottagers have been designed within the last few years for the purpose of forwarding early vegetables, and I am quite convinced that a handy man, with plenty of time on his hands in the long winter evenings, could manufacture all he may require in this way. Small, light, square boxes, strongly nailed together, from 18 in. to 2 ft. square, with a couple of squares of glass to slide down to form a roof, will be as efficient, and, if kept painted, would last as long as more expensive substitutes. Frames, made of stout wire, in the shape of hand-lights, and covered with oiled calico, are cheap and useful for placing over the plants on cold nights and days in the early period of their growth, and inverted flower-pots will always be found very useful on an emergency. Where a few barrows full of fresh stable manure or any other material that will produce a little warmth can be had, a start should be made about the end of April or beginning of May. They may either be grown in a continuous ridge or on slight hills about 4 ft. or 5 ft. apart. In the former case open a trench 3 ft. wide, and about 1 ft. deep, wheel the manure in, and cover it evenly with the soil taken from the trench, and, if possible, bring some fresh mellow loam, in which to sow the seeds. The manure should be made into a moderately firm compact ridge, from 18 in. to 2 ft. thick if possible, and 6 in. of soil on the top will be ample, as the young plants can be earthed up afterwards as they make progress. A trial stick should be plunged about 1 ft. in the bed, and as soon as the soil is moderately warm the seeds may be planted in groups (five or six seeds in a group), so that a hand-light, flower-pot, or whatever protection may be employed, will cover them. The groups or patches of plants may be placed along the top of the ridge 3 ft. or 4 ft. apart. If the seeds all grow, the weakly plants can be nuprooted, leaving only two or three at something like equal distances apart. The Cucumber season in the open air is usually a short one, and a great deal of the future success in their development depends upon giving the young plants a fair start, taking care not to coddle and weaken them with too much warmth or too much covering. The covers may be kept on till the young plants push through, and then every fine day afterwards; if opaque covering be used, they should be lifted off, of course placing them on again at night, and keeping them on during cold, windy days. With hand-lights, or any other glazed covers, a little ventilation only will be necessary on bright days to keep the plants in a hardy condition until the time comes for the lights to be removed; this should be done gradually, first tilting up the south side on two bricks, and in the course of a day or two the north side as well, letting the young shoots run outside; and as soon as the weather becomes fairly warm and settled, the covers may be taken away, and the usual routine of stopping, pegging, and regulating the shoots, must be gone through; this, however, is not so important a matter with open-air Cucumbers as with those altogether under glass. The shoots of course should be pegged down to prevent the wind from blowing them about and bruising them. Any strong shoot that shows signs of monopolizing too much of the strength of the plant should be nipped at once at the point, and, during the growing season, if a little fresh loamy soil can be sprinkled over the surface amongst the growing shoots, and round the main stems of the plants, about once a week, it will benefit them considerably. Watering will at all times be an important point in their management; at the commencement of the season the water should have the chill taken off by the addition of a little boiling water, and as the quantity required will be small, this will not occasion much trouble; afterwards, when the plants are fully exposed to the air, simply standing the water in the sun for twelve hours will be sufficient. I need not say that liquid manure will be of great service to Cucumber plants when they commence bearing, nor yet that all fruit should be cut when fit for use, unless seeds are required. Wood's Ridge or the Stockwood Ridge will be found as good as any kind. There are certain market growers that by a long course of selection have secured improved strains,

but, as a rule, they do not care about parting with seeds; but what they have done others may do by using the same care in selecting the seed-bearing plants. In favourable situations Ridge Cucumbers may be grown—and, in fact, are grown—without any assistance in the way of bottom-heat beyond that supplied by the sun; but, as I have already stated, an early start, provided no sacrifice is made of health or vigour, means early production. I know a village in Norfolk where years ago a good many of the inhabitants used to plant their gardens principally with Ridge Cucumbers for the Norwich market, and the profit realized was always in proportion to the attention given, especially towards securing an early, healthy, and vigorous start. I am not much in favour of putting out plants that have been started in a hotbed in pots, though I am free to admit that if the seed be sown in single pots, and plunged in a gentle hotbed almost close to the glass, there is no reason why they should not thrive well, if carefully hardened off and planted out under hand-lights or other protection; but too often when raised in a hotbed in this way they are huddled up with other plants, and are ultimately turned out with a weakened constitution, and perhaps covered with insects, and half the season is gone before they recover sufficient strength to bear fruit, and should the season turn out unfavourable, many will perish without bearing fruit at all. A crop of Gherkins may be raised for pickling purposes by simply sowing the seeds in patches, five or six in a patch 4 ft. or 5 ft. apart, in well-prepared land early in June, without any special preparation beyond such good culture as is necessary for other crops of vegetables in garden cultivation.

Growing Vegetables for Market.

An industrious man near a town, with a garden large enough to occupy all his spare time may, and, in fact, often does, realize a profit from it beyond supplying his family with fruits and vegetables. Where circumstances permit of this being done, it will be better to deviate somewhat from the ordinary system of cropping, and to cultivate only those plants that experience has shown can be produced in each particular locality in the greatest perfection. Market gardeners often find it answer their purpose better to concentrate their attention upon one or two special articles, and do this well so as to obtain the command of the market for those particular vegetables or fruits, than to grow an extended selection, acting on the principle that excellence in only a few things is better than mediocrity in a larger number. On warm, dry soils early Potatoes are a paying crop, and they may be cleared off in time to plant the land with Veitch's Autumn Broccoli. The Broccoli would in most cases be off the land by Christmas, which would give plenty of time for ridging it up and preparing it for the Potatoes again; I need hardly add that ground cropped like this must be liberally manured, and the crops must be occasionally changed. Short-top and French Breakfast Radishes are a profitable crop when raised early, and would be cleared in sufficient time for Celery, and this arrangement would make a very good rotation alternately with Potatoes and Autumn Broccoli, as the Celery could be cleared off by Christmas. A good bed of Rhubarb, if well treated and sheltered with litter to encourage early growth, would not cost much to make, and would pay well, while there is always a brisk demand for Seakale in the season, which might profitably be taken advantage of by the enterprising cottager who had a turf-pit or frame with the means of raising a little artificial heat. Early Cabbages, to be cleared off by the end of June or earlier, and the land prepared for Turnips immediately thereupon, would be suitable for some soils, and a good patch of Red Cabbages for pickling will usually find a ready sale at a good profit. Onions sown in the autumn tolerably thick, and drawn green when they are a good size towards the end of May, to be followed immediately by Vegetable Marrows, will make a good change with some of the modes of cropping previously named.

There is one point in connection with gardening for profit I think so important that particular stress ought to be laid upon it, viz., as far as possible to secure the best and truest stocks of each particular plant intended to be grown. Any plant of a good true strain will pay better for the space it occupies, granting the outlay is more in the first instance

for the seeds than the inferior quality, even if the latter have equal germinating power; and with this object in view it may be advisable to devote some attention to the saving of seeds of any really good variety of vegetable, especially as, if this idea be carefully worked out, it may open up another source of profit, cottagers often experiencing a difficulty in securing really good seeds. A careful cottager, who has taken pains in the selection of his plants, will soon obtain a reputation among his neighbours for the excellence of his crops, and may, by saving seeds occasionally, add considerably to his profits. Of course, two of the same family must never be in blossom at the same time, or it will probably result in a crops that will spoil both; this is the main reason why some kinds of vegetables, especially the Brassica family, are so difficult to obtain true to their individual kinds. There are too many varieties (so-called) by half, and every year adds to their number, and renders the confusion still greater. Peas, unless very early or very late, are not as a rule profitable to grow in a small way; French Beans may answer for a change of crops, and the same may be said of Lettuces, and the latter may often be used as a catch crop amongst others; but the main reliance should be placed upon those subjects that are best suited to the soil, and for which the best demand exists in each particular neighbourhood, for the selection of which experience alone will be the surest guide.

There is still another source from which a profit may be realized by those who have some little knowledge of the cultivation of common hardy border flowers, especially those that flower early in spring. There is a large and increasing demand for the decoration of town gardens early in the season by means of Daisies, Wallflowers, Pansies, Pinks, Cloves, Carnations, Sweet Williams, Polyanthus, common Auriculas, &c. They are all easily increased by division, cuttings, or seeds. They may be grown to a flowering size in one year at a very small cost, and could be lited with little balls and conveyed anywhere without feeling much check; and if sold at a rate so as to bring them within the means of the very poor, not only would the transaction be profitable in a pecuniary sense, but it might help to brighten the homes of those who have not too many elevating pleasures. I feel convinced that anything that tends to popularize (if I may use the term) and extend the cultivation of flowers must, in the long run, benefit all concerned in their production. I have ever found that when once a beginning is made and interest aroused, even though in a very slight degree, other and choicer varieties are being frequently added to the stock whenever the means will allow.

Select Vegetables.

BEANS—Dwarf Fan or Cluster, Early Green Long-pod, Seville Long-pod, Broad Windsor. *French*—Long-pod Negro, Canadian Wonder, Scarlet Runners.

BEEF—Henderson's Pine-apple.

BROCCOLI—Dwarf Green Curled, Cottagers'.

BROCCOLI—Veitch's Autumn, Snow's Winter, Early Peuzance, Cooling's Matchless, Cattell's Eclipse.

BRUSSELS SPROUTS—Imported or any good strain.

CABBAGE—Atkins' Matchless, Cocoa-nut, Enfield Market, Red Dutch. *Savoy*—Dwarf Green Curled, King Koffee.

CARROTS—Early French Horn, James' Intermediate, Improved Altringham.

CAULIFLOWERS—Early London, Walcheren, Veitch's Autumn Giant.

CELERY—Sandringham White, Leicester Red, Sulham Prize Pink.

CRESS—Curled.

CUCUMBER—Telegraph, Wood's Ridge.

LEEKS—London Flag, Ayton Castle Giant.

LETTUCES—Paris White Cos, Hicks' Hardy White Cos, Brown Cos, Early Paris Market Cabbage, Tom Thumb.

MUSTARD—White.

ONIONS—White Spanish, James' Long Keeping, Globe, Tripoli, White Lisbon.

PARSLEY—Sutton's Matchless.

PARSNIPS—Hollow-crowned, Student.

PEAS—William the First, Unique, Huntingdonian, Culverwell's Prolific Marrow, Ne Plus Ultra, British Queen.

POTATOES—Ashtop Kidney, Myatt's Prolific, Early Rose Late Rose, Snowflake, Fenn's Early Market, Fenn's Early White Kidney, Patterson's Victoria.

RADISHES—Wood's Frame or Short-top, French Breakfast.

SPINACH—Prickly, or Flanders.

TURNIPS—Cattell's Silver Ball, Orange Jelly, Veitch's Red Globe.

TOMATOES—Orangefield, Hathaway's Excelsior.

VEGETABLE MARROWS—Long White, Moore's Vegetable Cream. E. HOBDAY.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Glass Houses.—Examine Cinerarias, Calceolarias, and Pelargoniums particularly, in order to see that they are free from aphides, for if a single plant be infested by them, they will spread in all directions, giving immeasurably more trouble than if prompt means were taken to destroy them as soon as they appeared. There are many hard-wooded plants, such as Boronias, Polygalas, Tetrathecas, and Aphelexis, upon which aphides will live, although they do not thrive, and yet upon such plants, especially Aphelexis, they are much more difficult to kill than when upon plants for which they have a greater liking, so much so, that Tobacco smoke, when applied in strength and sufficient quantity to destroy them on soft-wooded plants, has next to no effect on them. In such cases I have found nothing equal to a couple of washings with good strong Tobacco water, allowing it to dry on the plants and not washing it off, as is sometimes recommended; this will generally be sufficient to kill not only the mature insects, but also their eggs. A few Gloxinias and Achimenes should now be started; pot the Gloxinias in good loam, to which add some sand and leaf-mould. Achimenes are best treated as follows:—Get some seed-pans, drain them, and let the soil used consist of three parts sifted loam and one-fourth of leaf-mould and sand. By using material of this description their roots do not get broken when shifting them into the pots in which they are intended to bloom. They will be ready for potting when they have grown 2 in. Both Gloxinias and Achimenes should be accommodated with a temperature of not less than from 60° to 65° at night, with a rise of 6° or 8° during the daytime. Till they commence to grow and push leaves they must receive no more water than will keep the soil slightly moist; they are apt to rot if too much be given them.

Pits and Frames.—Fresh stable manure, sufficient to make a good bed for a one or two light frames in which to raise Cucumbers and similar plants, as well as for making beds for Radishes, Potatoes, and Early Carrots, ought now to be got together; it is well to mix the manure with as much in bulk of leaves, as when thus mixed it does not heat so excessively, is ready to use sooner, and keeps its heat better than when manure only is used. The material for these beds, whether it is manure alone or mixed, ought to be well shaken, thrown into a heap, and watered if necessary. In this state let it remain for five or six days, then turn and shake it, an operation which ought to be repeated a second time in a similar way soon afterwards. Rhubarb, that is growing, must have plenty of water, for if neglected at all in this respect it will not come nearly so strong as if properly attended to. Seakale roots, after being forced, ought to be put in sand or ashes; if there be a scarcity of young roots for planting some of these will do when the time arrives for putting them in. A little Lettuce and Cauliflower seed should now be put in in boxes and placed in a house or pit, in which there is a little warmth, if not in a cold frame in a sunny situation where, when the plants are up, covering material can be used for protection if required.

Peaches, Nectarines, &c.—Amateurs who have good fruitful trees of Peaches, Nectarines, or Apricots, will do well this season to bestow an increased amount of labour upon them; the almost unprecedentedly mild winter which, up to the end of January, has given us no frost, is now beginning to show its effects in the bloom-buds, which are pushing unusually early. Where movable coverings exist for the protection of the expanded blooms in spring it will be advisable to put them on at once, and to draw them over the trees every day on which there is any sunshine; thus the already too early movement in the buds will be retarded, a circumstance which will tend more to secure a crop than any amount of protection that can be given to the bloom when it opens too soon. Be sure that in all cases the covering is secured to stakes driven in the ground at the base of the trees, but at such distance from them as to prevent the possibility of the wind causing it to chafe the shoots, or more harm than good will be the result. Where movable shading such as that now advocated is not available the trees will be better left to

themselves than any attempt at this retarding process being made by the use of evergreen branches or anything of a fixed character which has the certain effect of weakening the bloom. Early Apricots that have their bloom very forward had better be pruned and nailed, otherwise, from its advanced condition, it will be sure to be a good deal knocked off in the operation.

Bush Fruits.—Where a mixture of lime and soot was dusted over Gooseberry and Currant bushes about the close of the year, in order to prevent birds from attacking the buds, the continuous rains will have washed it off considerably; and as the time is approaching when these little feathered marauders commence their attacks, it will be well to give the trees another dusting. Where white threads have been strung over these bushes for a similar purpose and have become discoloured, a few more strands should be run across them, as upon the fresh white appearance of the material depends its deterrent powers. Any pruning that yet remains to be done in regard to the above fruits—Raspberries, Apples, Pears, Plums, or Cherries—either in the open ground or on walls, should at once be brought to a close.

Peas sown in the open ground about the beginning of the year on slightly elevated ridges, and covered as then recommended with dry material, will, except in moisture-holding soils, be secure, but where there are any doubts, it will be well to examine the seed, in order to see that it is not rotten through the excessive rainfall to which it has been subjected; where this is found to be the case, a fresh sowing should be made immediately, otherwise there will be a blank in the crop. Of Turnip Radishes another bed should now be sown, covering it with litter, as recommended for the first sowing. As Brussels Sprouts and Savoys are cleared off the ground, it should be manured and dug; but if there be not a good stock of Cottagers' Kale, Curled Greens, and Coleworts, it is not advisable to remove the old stools of these, for if left, they will furnish a supply of sprouts during the spring that will be found very serviceable.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

February 5.—Sowing a few Sweet Peas and Syon House Cucumber. Potting off Melons and plunging them in sawdust to keep them from slugs; also potting off some Mignonette for Tree Mignonette and placing it in a light, cool place. Shifting first Cucumbers and potting second lot. Potting Hydrangeas and Miss Nightingale Heliotropes, and placing them in heat. Pricking-off Lobelia speciosa cuttings. Examining blocks in Cattleya and Odontoglossum houses. Re-doing up Lælia autumnalis in Moss and charcoal. Putting in some double Senecio cuttings; also those of Coleus and of Centaurea gymnocarpa, C. candidissima, and Stephanotis. Putting in likewise more cuttings of Patunia, Verbena, Cerastium, and scented Verbena. Planting Box trees in shrubbery borders; also some Cauliflowers under hand-glasses, giving three shovelfuls of manure to each glass; likewise some Horseradish on ridges, laying the thongs horizontally. Placing another crop of Keen's Seedling Strawberry plants in heat. Covering up some Rhubarb and Seakale with boxes and embedding them in leaves. Shifting Borage into larger pots to get it into flower. Finishing nailing Apricots and beginning to nail Peach trees.

Feb. 6.—Sowing Walchereu and Early London Cauliflower in frame; also Capsicums and Chrysanthemum carinatum fl.-pl. Potting off Heliotropes, and placing them in heat; also potting off young Gazanias, and putting them into heat. Potting Rhododendrons in peat for forcing. Potting Disa grandiflora in peat. Putting in another batch of Asparagus. Raising Cattleya-house to 58° at night and 63° by day. Red-leading Peas to keep birds off them. Putting ashes over more Peas just coming up. Top-dressing the inside borders of second Muscats and Hamburghs with manure. Putting some manure to Asparagus beds. Mixing up some manure and leaves for Cucumber-pit. Making a new Vine border of good sandy turf only. Sooting between rows of Cabbages. Stirring up the soil about young Mignonette. Graveling walks and rolling new gravel. Top-dressing Peppermint-beds with leaf-soil. Looking over wall-tree coverings, making new ones, and repairing old ones. Making canvas coverings for Green Gage Plums. Earthing-up the first Peas.

Feb. 7.—Sowing Bromham Hall Melon, Parsley, and Viola Intea. Potting Salvia splendens and Guaphalium. Putting in more cuttings of Achyranthus, Fuchsia, Scutellaria, and Tropæolum called Crystal Palace elegans. Putting in another forcing of Rhubarb. Putting a few pots of Musk in heat. Looking over Apple stores. Top-dressing pot Vines with manure. Levelling Vine

borders and putting on a dressing of bones. Making some frames ready for Heaths. Clipping Holly hedge. In flower out of doors—Snowdrops and *Eranthes hyemalis*.

Feb. 8.—Sowing *Wigandia*, *Polymnia*, *Hedychium*, and *Phorium tenax*; also East Lothian Stocks, *Nasturtium canariense*, *Petunia*, *Cyclamen*, Golden Feather *Pyrethrum*, and *Rhodantho*; also sowing *Chilias*, *Borage*, *Marjoram*, *Basil*, *Egg Plant*, and *Tomato*. Potting cuttings of *Croton variegatum*, *Sericographis*, *Salvia patens*, first-struck *Fuchsias*, *Verbenas*, *Mangles' Pelargoniums*, and second-sown *Cucumbers*. Re-doing-up *Saccolabium guttatum*, using crocks and Moss. Potting *Dendrochilum filiforme* in Moss and peat. Putting old *Fuchsias* into heat for cuttings. Putting dwarf *Roses* into second *Peach-house*; also shading to *Odontoglossum-house*. Giving first *Peach-house* trees a good watering; also a good top-dressing to *Roses*, young *Apple trees*, *Tulips*, and *Hyacinths*. Manuring *Black Currants*. Raising second *Peach-house*, which is in full flower, to 55° at night.

Feb. 9.—Sowing *Verbena venosa*, *Chamæpeuce diacantha*, *Echeveria*, *Melianthus*, and *Cineraria acanthifolia*. Potting *Gazania splendens*. Putting in a few cuttings of *Lavandula dentata*; also some *Willow cuttings*. Planting four lights with sprouted *Ash-top Potatoes*. Dusting *Plum trees* with soot, as birds are injuring the buds. Earthing earliest *Potatoes*. All pot *Hampshire Grapes* ready for thinning, except *Foster's Seedlings* which is setting.

Feb. 10.—Potting *Gloxinias* and *Caladiums*, and putting them into moist heat. Dipping *Strawberry plants* for green fly. Camel-hair brushing flowers of *Strawberry plants* in *Fig-house*. Sending away *Lady Downe Grapes*. Topping and otherwise trimming *Turnips*, and placing them in a cool place in ashes. Top-dressing *Peach trees* in pots with half *cow-manure* from farmyard and half *barut refuse*. Cleaning up *wood-walk sides*. Keeping *East Indian Orchids* drier than usual, in order to induce them to flower.

Orchids.

Barkerias are among the most troublesome plants with which the *Orchid grower* has to deal, not so much perhaps on account of their being difficult to manage, for when placed in a suitable temperature and position that is not the case, but because, owing to the smallness of their growth, they are particularly liable to be affected by excess of either heat or cold, or to be irretrievably injured by the rays of the sun in summer; thus it is that many *Orchid growers* who know well the culture of these plants frequently lose them by misadventure, and the large importations which are from time to time received in a couple of years dwindle down to a few specimens. The *Barkerias* thrive best when fastened to blocks without *Sphagnum Moss* or other material. They are very impatient of dry heat, and should be suspended on the shady side of an intermediate-house within a few inches of the glass. If a moist wall exist in either the intermediate-house or the warmer end of the cool *Odontoglossum-house*, the safety of the plants may be insured during both the growing and resting seasons by having them suspended as near the glass as convenient, and within 1 in. or so of the brick wall. By this means the frequent waterings and alternations between wet and drought, so injurious to the plants, will be avoided; and having a genial humid atmosphere around them at all times they will seldom require water during the resting season, but will be preserved from being dried up, and during the growing season, when they should be kept wet, they will receive the full benefit of the water given them, which would evaporate in a few hours if the plants were placed in a dry situation. *Barkerias*, like many other small-growing *Orchids*, are rather capricious; and once having found a situation in which they thrive well, the cultivator should be very careful about moving them to another place. The temperatures during February should be—*East Indian* or warm house, 65° by day and 60° at night; *Cattleya* or intermediate house, 55° by day and 50° at night; *Odontoglossum* (*New Granada*) or cool house, 50° by day and 45° at night; the day temperature being allowed to rise 5° to 10° by sun-heat, admitting air on every occasion when the weather outside will permit. Those who have but one house should treat it as an intermediate one.—JAMES O'BRIEN.

SMALL SIZE OF THE TREES IN PARIS.

The French deserve praise for so liberally embellishing Paris with trees, yet though they have been planted for many years it is a curious fact that there are no big trees in the streets or avenues of Paris! And not only no big trees, but scarcely a medium-sized one! It is not the fault of the poor trees, or the soil, or the air. It is caused by a system of management apparently based on the notion that trees, like soldiers, are best arranged in close order, or like the poor fellows who find a last rest in the *Fosse Commune* without any earth between the boxes. There is no evidence whatever that any one responsible for the street trees of Paris has the least idea of the beauty of hardy trees when well developed. At best they are only seen a little better grown than in the nursery garden. They are everywhere with heads crowded together—starving for want of space above and below. Two or three *Planes* usually stand where one fairly-developed tree would be sufficient. Often the *Planes* may be seen running up before the tall houses in the finer streets with a stem before every window. Some of the trees on the *Thames embankment*, although only a few years planted, are now almost as large as the best in Paris. If we only thin in a bold and timely manner, a very few years will see the embankment trees better specimens than any in Paris. The *Plane trees* in our squares are far finer than any there, owing to the fact that they had room to grow and were not pruned. Pruning, to throw the strength of a tree or shrub into fruit or flower or into some shape desired by the cultivator, is a rational and often very successful process, but nothing of the kind can be said of the pruning of any grown forest or ornamental tree: to prune them is to destroy their beauty, individuality, and dignity. In Paris pruning into a miserable uniformity is carried out to a deplorable extent. It would be difficult to make Parisians understand how much beauty they are thus deprived of. Few of them have any idea of what a grown tree really is. Their trees are only sticks with leaves at the top, much like the ostrich, which wears a few graceful plumes by way of apology. These remarks apply to trees in open spaces as well as in the street, which are, however, often wide enough to admit of fair development. If this system is to go on, it will be wise of the educational powers now doing so much for young France to plant a few acres with native and hardy trees to be allowed to assume their full size and natural development. One does now and then see in the etchings in the shop windows a portrait of a fine tree, but where it is so easily done it is desirable to have living examples. It has been said to the writer that fine trees cannot be grown in Paris, but that this is not the case is proved by the existence of occasional good specimens in courts and small gardens, which the municipal pruners did not visit. Sometimes, when "demolitions" are in active progress, a fine old tree may be now and then seen as the houses are taken down around it. In such positions the conditions are by no means so favorable to tree-growth as in the many open streets and wide avenues. Along the quays, too, where the trees might throw their arms over the water on one side, and over a wide hot road on the other, they are just as prim and as unlike fine trees as they are anywhere else; no doubt, in some narrow streets very wide-spreading trees are not desirable, but in such cases the right way is to select species and varieties which will suit the position without needless mutilation. V.

Hemlock Spruce Hedges.—The *Hemlock Spruce* can scarcely be excelled in form, health, or vigour for hedges. We ("Moore's Rural") have seen one 300 ft. long, and 6 ft. high. It was planted eight years since, the soil trenched 2 ft. deep and 4 ft. wide, well enriched, and small plants less than 1 ft. high were set in the centre of the prepared space. Not a plant died the first season or since. Its beauty and vigour we attribute to two things—thorough preparation of the soil before planting, especially the trenching, and the annual pruning in spring. There is certainly no secret in this, and there is no good reason why just such hedges should not be seen upon every property, the owner of which has an eye for ornaments of this kind. There is certainly no hardy evergreen equal to the *Hemlock Spruce* for ornamental hedges.

Rose Stocks and Spring Frosts.—Mr. Richard Smith, of Worcester, who grows many thousands of *Tea Roses* every year, propagates them in heat by grafting them on the *Manetti stock*. The operation is begun during November, and many of the plants when grafted flower the following May. The *Manetti stock* is, however, very easily excited into growth in spring, much more easily, indeed, than the common *Brier* and other *Rose stocks*, and as a consequence *Roses* on the *Manetti* suffer from spring frosts under conditions in which the same varieties worked on *Brier stocks* escape injury.

THE LATE CANON KINGSLEY'S HOUSE AND GARDEN.

THAT the late Canon Kingsley was devotedly fond of plants of all kinds, none who knew him or who have read his books will doubt, but his heavy clerical and literary duties prevented him from paying that attention to horticulture which otherwise he would doubtless have done; still, that he entertained a taste for the beautiful in matters pertaining to gardening will be seen by the annexed view of Eversley Rectory. The engraving shows the south front of the Rectory, the open glass door being the entrance to Canon Kingsley's study. The house is literally covered with vegetation, consisting of Magnolias, Wistarias, Japanese Honeysuckle, Ceanothus, Roses, and Ivy. The garden, which is but of small extent, consist of a mixed border of hardy flowering plants and Creepers, seen on the right of the picture, and a solitary circular bed on a Grass plot at the opposite end, filled with similar plants. The eastern

ECCENTRICITIES IN AURICULAS.

I AM at present engaged in making a collection of what, for want of a better term, I have designated "eccentricities" in Auriculas, *i.e.*, departures from what we have come to regard as correct forms. A remarkable illustration of the singular variation to which Auriculas are liable occurred last spring in the vicarage garden, Kirkby Malzeard, Ripon, the residence of that well-known Auricula cultivator, the Rev. F. D. Horner. Mr. Horner had crossed two very fine stage Auriculas: one a very fine grey-edged sort, the other an equally fine green-edged kind, and among the progeny was a number of exceedingly nondescript forms, having the paste white, the ground colour yellow, and the edging of a lovely green. Some were pure yellow selfs, and many had broken into other forms as grotesque as they were varied. It seemed as if the pollen of a yellow self like Gorton's Stadtholder had been used to fertilize one of the fine-edged Auriculas, though Mr. Horner



The late Canon Kingsley's House and Garden.

or carriage front of the house is also clothed with plants, the front entrance being through a small greenhouse in the form of a verandah, and on the lawn are three fine Scotch Firs, the top of one of which is seen in the engraving. Under the shade of this tree lie the remains of the late Canon, the churchyard wall being also the boundary of the rectory garden, a fit resting place for one who in life was so attached to what he termed "dear Eversley." The rectory and church, and also the surrounding scenery, are all of the most picturesque description. The walls of the churchyard are completely covered with Ivy, Cotoneasters, Wild Roses, and Honeysuckle, intermixed in the most charming manner. At the entrance is an avenue of Irish Yews, and on either side of the path leading from the rectory to the church porch, are some very fine specimens of Chinese Junipers. Tall Lombardy Poplars covered with Ivy, large Yews, Arbor Vitas, and Portugal Laurels, are so intermingled as to render the late Canon's garden well worth a visit.

W. W. H.

stated that nothing of the kind had occurred. I quite envied Mr. Samuel Barlow, Manchester, the possession of a basket of these singular seedlings that he took with him, and he has a large collection of these grotesque forms that are of a most interesting character. Mr. Horner sent me one peculiar green flower which he called "Jolly Green." It bears self-green flowers of great size, with a slight zone of white paste round the tube. One wonders what progeny seed taken from this variety would be likely to produce. Another eccentric seedling I have is, to my mind, very charming: there are the yellow tube and the white paste, but instead of the dark ground colour a broad band of silvery grey reaches to the very edge. The foregoing are but a few of many forms that I am gradually gathering together. The Alpine flowers also have yielded some singular novelties, some as yet only prematurely developed, but full of promise of a quaint originality. The more grotesque they are the greater is the interest which they possess.—Quo.

TREES AND SHRUBS.

IMPROVEMENT OF PARK SCENERY.

SUFFICIENT attention is not directed to park planting, with a view to render the landscape scenery picturesque and varied, when marginal masses, young plantations, clumps, or groups are being formed in new parks; it is also necessary from time to time to fill up blanks in park plantations occasioned by high winds or the decay of trees, if a succession of healthy growing timber be desired throughout the country. Before selecting the subjects to form the principal masses, it is essential to have some knowledge of the trees most suitable to the various conditions of soil, geological formation, and climate; as a general rule, it is the safest and perhaps the wisest plan to plant the park belts, marginal masses, and the larger clumps and groups with those trees that are found to thrive best and to develop into the finest timber in the locality where the planting is intended to be carried out. Trees suitable for forming the principal masses in the park may be divided into two classes, thus:—Oak, Elm, Lime, Horse and Sweet Chestnut trees, for rich, loam, and clay soils, and somewhat sheltered sites; Beech, Sycamore, Norway Maple, and Birch trees for thin poor soils and in exposed sites. Among Conifers (though not strictly park trees) the Wellingtonia, Silver Firs in variety, Douglas and Menzies Spruces, and Pinus austriaca, Laricio, Benhamiana, Jeffreyi, ponderosa, macrocarpa, and many other hardy and tall-growing varieties, may be planted on the declivities of hills in groups amongst the marginal masses to give variety, contrast, and shelter; they can also be planted in groups to form a background to deciduous trees on prominent hills in the distance to break the hard, level, sky outline. The best and at the same time most pleasing and picturesque effect in park planting is to be produced by grouping with distinct species bold, sweeping masses of different sizes and irregular shapes to avoid giving similarity in size and form of groups of each distinct kind of park tree, and by planting smaller groups of the newer and more beautiful varieties of each species in front of the common sorts, distributing these latter at wide and irregular distances apart from tree to tree, so as not to add a stiff and clump-like appearance to the larger masses. By a judicious arrangement of groups of ornamental trees and dwarf tree forms, they should exhibit a different outline to the eye on every side; and although they should be planted at wide distances apart to allow every tree sufficient room to develop its special features of habit and foliage to the fullest extent, yet still these, when viewed at a distance, should blend into one group. Clumps of park trees are generally round or oval in shape, and mostly planted on prominent knolls. They should be composed of one distinct variety or species. Groups of dwarf trees may be advantageously used to soften down abrupt outlines of clumps. Mixed groups of fine-foliaged and flowering trees, of silvery and dark-foliaged, of rich autumn-tinted and the more quiet coloured, and the round-headed with the fastigiated forms, the weeping with the irregular or oblong forms, should be tastefully distributed throughout the park, advantage being taken of the undulating surface by planting the groups on the rising ground, leaving the hollows or valleys to form grassy glades. These latter may occasionally be broken when too great a breadth of grass is visible, by planting groups of dwarf trees in the foreground. Thorns and other dwarf trees should also be planted near carriage drives, and on each side of sharp curves of park roads and drives in scattered groups of various sizes from a triplet to a score or more. These dwarf-tree forms, when planted judiciously, give variety without abruptness and a more natural appearance generally to the planting. Single specimen trees of distinct and marked features should be planted on well-chosen spots, but care must be taken not to plant too many so as to give a speckled or chessboard-like appearance to the park. The leading features to be aimed at in park planting should be variety, with distinctiveness, and system of arrangement without formality. Conifers are only suited for park adornment at a distance from the mansion, on the sides of hills or prominent high-lying outskirts; when planted in the foreground or in the low-lying

sites of parks either in clumps, groups, single specimens, or to form avenues, they are altogether out of character with true English park landscape planting. The only exception to this rule is the Cedar of Lebanon, which may be tolerated near a mansion, but even this only when the style of architecture is Elizabethan, Tudor, Jacobean, or of some other allied type.

The following is a list of trees suitable for park planting, arranged under the following heads. Those marked (*) are of a shrubby habit of growth; they should be trained to one stem to form dwarf trees, or grafted on standards.

Trees

With Beautiful Foliage, Singularity of Habit, or otherwise Remarkable, suitable for Grouping.

Ailantus glandulosa	Quercus macrophylla
Alnus glutinosa imperialis and laciniata—Alder	Quercus macrophylla Albertsi
*Aralia spinosa	Quercus paunonica
Betula asplenifolia—Fern-leaf Birch	Quercus panosa
*Broussonetia papyrifera	Quercus pectinata
*Carya alba—White-nutted Hickory	Quercus Cerris
Catalpa syringifolia	*Rhus glabra laciniata—Cut-leaved Sumach
*Celtis australis—Nettle Tree	Salix annularis—Ring-leaved Willow
*Corylus Colurna—Constantinople Hazel	Salix Basfordiana—branches and twigs rich orange-coloured
Dimorphanthus Mandshuricus	Salix fragilis
*Euonymus verrucosus—Wanted-barked Spindle tree	Salix monspeliensis
Fagus asplenifolia—Fern-leaf Beech	Salix pentandra—Sweet-scented Willow
Fagus cristata—Crested Beech	Salix Russelliana
Fagus ferruginea—American Beech	Salix sanguinea—Red-twigged Willow, very brilliant
Fraxinus americana latifolia	Sophora japonica
Fraxinus heterophylla	*Staphylea trifolia—Bladder-nut Tree
Fraxinus lentiscifolia	Tilia dasystyla—handsome variety; foliage keeps green, and hangs on till late in autumn
Gleditschia horrida	Tilia heterophylla
Gleditschia triacanthos	Tilia microphylla
Juglans macrophylla	Tilia rubra—Red-twigged
Juglans nigra	Tilia laciniata
Juglans regia laciniata	Tilia anrea—Yellow-twigged
*Paliurus aculeatus	Ulmus suberosa vulgaris
Paulownia imperialis	Ulmus campestris viminalis
*Planera Richardi—Zelkova tree	Ulmus suberosa effusa
Platanus occidentalis	Ulmus montana glabra
Platanus orientalis	Ulmus montana major
Platanus orientalis acerifolia palmata	*Nantboxylum fraxinenum—Tooth-ache Tree
Populus tremula	*Zizyphus vulgaris—Jujube Tree
Populus angulata	
Populus balsamifera	
*Pterocarya caucasica	
*Ptelea trifoliata	
Quercus Egilops	

Remarkable for their Autumn Tints.

Æsculus, of sorts—Horse Chestnut	Cratægus Layi
Acer saccharinum—Sugar Maple	Cytisus alpinus—Scotch Laburnum
Acer rubrum—Red Maple	*Euonymus europæus—Common Wild Spindle Tree
Acer platanoides—Norway Maple	*Euonymus latifolius
Acer spicatum—Spike-flowered Maple	Fagus, of sorts—Beech
Acer colchicum rubrum—Colchic Maple	Fraxinus excelsior anrea
Acer striatum—Striped-barked or Snake-barked Maple	Liquidambar styraciflua—Sweet Gum Tree
Acer tataricum—Tartarian Maple	Liriodendron tulipifera—Tulip Tree
Acer macrophyllum—Large-leaved Maple	*Parrotia persica
Acer platanoides laciniatum—Eagle's Claw Maple	*Pavia, of sorts—Smooth Horse Chestnut
Acer pinnatifidum—Pinnatifid Maple	Quercus coccinea—Scarlet Oak
Acer platanoides dissectum—Cut-leaved Norway Maple	Quercus rubra—Red Oak
Carpinus Betulus—Hornbeam	Quercus alba—White Oak
Carpinus Betulus incisa—Hornbeam	Quercus nigra—Black Oak
Castanea, of sorts—Sweet Chestnut	Quercus tinctoria
Cerasus sylvestris—Wild Cherry	Quercus falcata
*Cornus mas tricolor—Dogwood	Quercus americana laciniata
Cratægus cordata	Quercus imbricaria
Cratægus coccinea	Quercus macrophylla
Cratægus Crus-galli	Quercus palustris
Cratægus flava	*Rhus typhina—Stag's-horn Sumach
Cratægus flava trilobata	*Rhus vernix—Swamp Sumach
Cratægus grandulosa	Salisburia adiantifolia—Maiden-hair Tree
Cratægus purpurea	Taxodium distichum—Deciduous Cypress
Cratægus rigida	Ulmus, of sorts—Elm
Cratægus tenacetifolia	*Virgilia lutea
Cratægus nigra	*Viburnum Lantana
Cratægus prunifolia	*Viburnum opulus

With Silvery or Glaucons Foliage.

- **Elæagnus argentea*—Wild Olive
- **Elæagnus hortensis*—Wild Olive
- Fraxinus argentea*—Ash
- **Halimodendron argentea*—Silver Salt Tree
- **Hippophæ rhamnoides*—Sea Buck-thorn
- **Hippophæ salicifolia*—Sea Buck-thorn
- Populus alba* (Abele)—White Poplar
- Populus canescens*—Grey Poplar

- Populus argentea*—Silver Poplar
- Pyrus domestica*—True Service
- Pyrus Aria*
- Pyrus salicifolia*
- Pyrus nivalis*
- Pyrus pinnatifida lanuginosa*
- Salix alba*—White Willow
- Salix caudata*
- Salix regalis*
- Salix Huntingdonensis*
- Tilia argentea*—Silver Lime

Flowering and Fruit or Berry bearing.

- Æsculus Hippocastanum*—Horse Chestnut
- Æsculus Hippocastanum rubra*
- Æsculus Hippocastanum fl.-pl.*
- Æsculus Hippocastanum laciniata*
- **Amelanchier Botryapium*
- Amygdalus domestica*
- Amygdalus persica*
- **Calophaca wolgarica*
- **Caragana arborescens*
- **Caragana grandiflora*
- Carpinus Betulus*—Hop-flowering
- **Cerasus Padus*—Bird Cherry
- Cerasus sylvestris*—Wild Cherry
- **Cercis siliquastrum*—Judas Tree
- Cerasus multiplex*—Double Pink Cherry
- **Cornus alba*—Dogwood
- **Cotoneaster affinis*
- **Cotoneaster acuminata*
- **Cotoneaster frigida*
- **Cotoneaster nummularia*
- Cratægus Oxyacantha fl.-pl.*—Double White
- Cratægus Oxyacantha coccinea*—Single Scarlet
- Cratægus Oxyacantha punicea fl.-pl.*—Paul's Double Scarlet
- Cratægus Oxyacantha rosea fl.-pl.*—Double Pink

- **Kolreuteria paniculata*
- Magnolia glauca*
- Magnolia glauca Thompsoniana*
- Magnolia tripetala*
- Magnolia macrophylla*
- Magnolia acuminata*
- Magnolia cordata*
- Malus alba fl.-pl.*—Double White
- Malus floribunda*—Many-flowered
- Malus rosea fl.-pl.*—Double Rose-flowered
- Malus spectabilis*—Chinese Crab
- Malus prunifolia*—Siberian Crab
- Morus rubra*—Red Mulberry
- Morus nigra*—Black Mulberry
- Morus alba*—White Mulberry
- **Pavia macrostachya*
- **Pavia discolor*
- **Pavia flava*
- **Pavia rubra*
- Prunus triloba*—Double Pink Plum
- Prunus virgata*—Double Pink Plum
- Prunus alba-pleno*—Double White Plum
- Prunus spinosa*—Single White Sloe Tree
- Pyrus aucuparia*—Mountain Ash
- Pyrus vestita*
- Pyrus torminalis*
- Robinia Pseudo-Acacia*
- Robinia Pseudo-Acacia hispida*—rose
- Robinia Pseudo-Acacia lutea*—yellow
- Robinia Pseudo-Acacia purpurea*—purple
- Robinia Pseudo-Acacia Decaisueana*—rose
- Robinia Pseudo-Acacia Bessoniana*—Besson's
- Robinia Pseudo-Acacia monolifera*
- Robinia Pseudo-Acacia inermis*
- Robinia Pseudo-Acacia macrophylla*
- Robinia Pseudo-Acacia viscosa*—rose

- And many others
- Cytisus Laburnum*—English Laburnum
- Cytisus alpinus*—Scotch Laburnum
- Cytisus serotina*—Autumn-flowering Laburnum
- Cytisus quercifolia*—Oak-leaved Laburnum
- Cytisus purpurea*—Purple-flowered Laburnum
- Cytisus flore-alba*—White-flowered Laburnum
- **Euonymus europæus*—Common Wild Spindle Tree
- **Euonymus latifolius*—Broad-leaved Spindle Tree
- Fraxinus Ornus*—Flowering Ash
- **Gymnocladus canadensis*—Kentucky Coffee Tree
- **Halesia tetraptera*—Snowdrop Tree
- **Halimodendron subvirescens*—Salt Tree

- **Viburnum Opulus*—Snowball Tree
- **Viburnum laevigatum*
- **Viburnum prunifolium*
- **Viburnum Lantana*
- **Viburnum plicatum tomentosum*
- **Viburnum cassinoides*
- **Viburnum Lentago*

With Variegated Foliage.

- Acer Negundo variegatum*—Maple
- Acer Pseudo-Platanus variegatum*—Sycamore
- Acer Pseudo-Platanus purpureum variegatum*
- Carpinus Betulus variegata*—Hornbeam
- Castanea vesca variegata*—aurea
- Castanea vesca variegata*—argentea
- **Cerasus Mahaleb variegata*—Mahaleb
- **Cercis Siliquastrum variegata*—Judas Tree
- **Cornus mas variegata*—Dogwood
- **Euonymus latifolia variegata*—Broad-leaved Spindle Tree
- Fagus sylvatica variegata*—Beech
- Fraxinus excelsior variegata*—Ash
- Fraxinus excelsior argentea variegata*
- Liriodendron tulipifera variegata*—Tulip Tree

- Platanus occidentalis variegata*—American Plane
- **Ptelea trifoliata variegata*—Trefoil Tree
- Quercus Cerris variegata*—Silver-edged Turkey Oak
- Quercus pedunculata variegata*—Oak
- Quercus Ilex variegata*—Oak
- Sophoris japonica variegata*
- Tilia ulmifolia variegata*—Lime
- Tilia argentea variegata*—Lime
- Ulmus campestris variegata*—English Elm
- Ulmus suberosa variegata*—Dutch Elm
- Ulmus montana variegata*—Scotch or Wych Elm
- Ulmus major variegata*—Scotch or Wych Elm

With Rich Deep-coloured Foliage in Summer.

- Catalpa syringifolia aurea*
- **Corylus Avellana purpurea*—Purple Hazel
- Cytisus Laburnum aurea*
- Cytisus alpinus aurea*—(Smith's new)
- Alnus glutinosa aurea*—Golden Alder
- Acer colchicum rubrum*—Red Maple
- Acer purpureseus*
- Acer polymorphum roseum*
- Acer polymorphum rubrum*
- Acer Pseudo-Platanus purpureum*
- Acer Pseudo-Platanus rubrum*
- Betula purpurea*—Purple Birch

- Fagus sylvatica purpurea*—Purple Beech
- Fraxinus excelsior aurea*—Golden Ash
- Populus canadensis aurea*—Golden Poplar
- **Euonymus europæus purpureus*—Purple Spindle Tree
- Quercus concordia*—Golden Oak
- **Sambucus nigra aurea*—Golden Elder
- Ulmus campestris purpurea*—Purple Elm
- Ulmus campestris Rosseelsi*—Golden Elm

Suitable for Avenues.

- Elm—English
- Elm—Dutch
- Plane—P. orientalis
- Plane—orientalis acerifolia
- Plane—occidentalis
- Lime—Red-twigged
- Lime—Yellow

- Lime—*Tilia dasystyla*
- Oak—Common
- Oak—Scarlet
- Beech—Common
- Tulip Tree
- Horse Chestnut
- Sweet Chestnut

Weeping.

- Almond
- Ash—Common
- Ash—Mountain
- Birch—laciniata pendula
- Birch—Young's New
- Beech—Common and Purple-leaved
- **Caragana pendula*
- Cherry—*Cerasus pendula*
- Elm—American
- Elm—English
- Elm—Camperdown
- Elm—Scampston
- Elm—myerophylla pendula
- Elm—Dutch
- Elm—Scotch
- Gleditschia pendula*

- Hornbeam pendula
- Laburnum—English
- Lime—Common and Silvery
- Populus tremula pendula*
- Populus grandidentata pendula*
- Quercus ægilops pendula*
- Quercus americana pendula*
- Quercus pedunculata pendula*
- Robinia Pseudo-Acacia pendula*
- Saphora japonica pendula*
- Thorn—*Cratægus pendula*
- Juglans regia pendula*
- Willow—American
- Willow—Babylonian
- Willow—Fox's New
- Willow—Kilmarnock

Evergreen and Sub-Evergreen.

- Castanea chrysophylla*
- **Cotoneaster frigida*
- **Cotoneaster affinis*
- **Cotoneaster acuminata*
- **Cotoneaster nummularia*
- Quercus Lucombiana*
- Quercus Pseudo-Acacia crispa*
- Quercus Lucombiana dentata*
- Quercus Lucombiana suberosa*
- Quercus Lucombiana incisa*

- Quercus fulhamensis*
- Quercus Wheeleri*
- Quercus Thuneri*
- Quercus Pellois*
- Quercus Ilex*
- Quercus Ilex latifolia*
- Quercus Suber* in variety
- Quercus virens*
- Quercus Fordi*
- Ulmus chinensis*

Habit or form of Head.

FASTIGIATE.

- Birch, fastigate
- Cypress, deciduous (*Taxodium distichum*)—pyramidal and spiral
- Elm, fastigate
- Elm, columnar
- Elm, Dampier's pyramidal
- Lime, pyramidal
- Locust Tree, pyramidal
- Oak, pyramidal
- Oak, fastigate
- Plane, pyramidal
- Poplar, fastigate
- Poplar, fastigate giant
- Pyrus, pyramidal
- Salisbury, spiral

ROUND-HEADED.

- Ash
- Beech
- Elm, Scotch
- Elm, Dutch—round when old
- Elm, English (oblong and irregular when young)
- Horse Chestnut
- Lime—pyramidal and oblong when young
- Oak
- Robinia Pseudo-Acacia inermis*
- Sweet Chestnut
- Sycamore
- Plane
- Maple
- Willow

Longleat.

GEORGE BERRY.

Destroying Stumps of Trees.—The following receipt is reported to have proved very successful in the backwoods of America:—In the autumn bore a hole 1 in. or 2 in. in diameter and 18 in. deep, put in 1½ oz. of saltpetre, fill with water and plug up close. In the following spring put in the same hole half a gill of kerosene oil, and then light. The stump will smoulder away without blazing, even down to every part of the roots, leaving nothing but ashes.

Laburnum in Flower in the Isle of Wight.—A large Laburnum tree growing at St. Helen's, a little village about 2½ miles from Ryde, is now in full flower. I have not had time to go and see it myself, but I am told it is quite a picture, looking more like May than January.—H. EWBANK.

A FEW MORE GOLDEN VARIEGATED DECIDUOUS TREES.

THE list of golden variegated trees given in your last issue (see p. 79), appears to me to be incomplete without the enumeration therein of the following beautiful varieties of recent introduction, chiefly from Continental nurserymen:—(1) The new Golden Variegated Dogwood (*Cornus mas. elegantissima*), recently sent out by Messrs. Lee & Sons, of Hammersmith, quite one of the most constant and beautiful, as well as one of the most profusely marked variegations I have yet seen, all the leaves being broadly and clearly margined with gold, besides being sometimes towards the end of the season also streaked and spotted with rose colour. (2) *Ptelia trifoliata aurea*, a most distinct, conspicuous, and beautiful golden variegated form of this comparatively well-known shrub, and though as yet new and scarce in this country, it is apparently of by no means recent introduction in Belgium, if one may judge from the low price at which it is offered by the nurserymen there. (3) The Golden Poplar (*Populus vulgaris aurea* Van Geerti), a beautiful all-golden form of the Common Poplar, sent out by the well-known Belgian nurseryman whose name it bears. (4) The Golden Laburnum (*Cytisus Laburnum aureus*), a most distinct and beautiful all-golden-foliaged tree, recently sent out by Mr. Richard Smith, of Worcester. (5) *Weigelia Loozmansi aurea*, a fine novelty, with golden-yellow leaves usually surrounded with a slender edging of fine carmine-red, very constant in its variegation, and now being distributed by M. Van Houtte, of Ghent. (6) *Clerodendron Bungei variegatum*.—This, though hardly deserving enumeration among golden variegated hardy shrubs, still comes next door to them, as it is clearly and distinctly blotched with a most beautiful cream-coloured variegation, which seems very constant, and renders the plant likely to prove a great acquisition to our ornamental shrubs. A distinction should, I think, also be pointed out which exists between the two variegated forms of the golden variegated Golden Tree (*Liriodendron tulipiferum*), only one of which is mentioned in the list in question. This, however, seems from its description to be by far the most beautiful and distinct of the two, and was sent out by M. Van Houtte two or three years ago under the name of *Liriodendron tulipiferum aureo-marginatum*, being well figured in vol. xx. of the "Flore des Serres," t. 2801. The other, a decidedly inferior variety, which can be had at less than a quarter of the price of the above-named, is correctly named *Liriodendron aureo-vittatum*, being only more or less sparingly blotched with gold. W. E. G.

Hæmanthus cinnabarinus.—This is one of the rarest, and, when well grown, most gorgeous of all bulbous plants, and as such is deserving of more extended cultivation in our gardens. It is a native of the western coast of the African continent, and has, on one or two occasions during the past year, been exhibited by Messrs. Jas. Veitch and Sons, of Chelsea. The Hon. and Rev. J. Townshend Boscawen, of Lamorran, Probns, has also been most successful in its culture. The inflorescence is frequently more than 18 in. in circumference, and of a vivid, cinnabar-scarlet colour, tinted here and there with carmine; indeed, scarcely any illustration could well represent the colours, since they have the sparkle and lustre of a Guernsey Lily, or some of the glowing *Masdevallias* of the M. Veitchi or M. ignea type. Mr. Boscawen had fertilized some of the flowers, and the seed-vessels had begun to enlarge ere the spike was cut, so that it seems probable that it may be increased by seeds. There are several other remarkably beautiful species in this genus well worth more general culture, but none better than the plant now alluded to since, apart from its value as a somewhat stately-habited stove plant, its star-shaped flowers and coral-tinted buds are admirably adapted for mixing with pearly white *Eucharis*, Lily of the Valley, or other choice bouquet flowers. Its season of blooming varies under cultivation from March to November, and it continues fully six weeks in bloom.—S.

Hybrid Fuchsia (Earl of Beaconsfield).—This is one of the most floriferous of all the modern hybrids in the graceful genus to which it belongs, and has been obtained by Mr. John Laing, of the Stanstead Park Nursery, Forest Hill, its parents being the old *F. fulgens* (now rarely seen except in country cottage windows), and one of the modern florists' varieties, grown under the name of *Perfection*. It is both distinct and attractive, and likely to be much sought after, not only as a permanent ornament in conservatories

and corridors, but also as a plant well suited for pot culture for markets. The plant is of a dense pyramidal habit, branches freely, and each shoot is terminated by a raceme of carmine and cinnabar-tinted flowers and buds contrasted with ample foliage. The plant has received a first-class certificate from the Royal Botanic Society as being eminently suited for decorative purposes. Fuchsias are always graceful and attractive, but never more so than when trained up the rafters of a moderately warm conservatory, and allowed to hang from the roof in pendent festoons of flowers and foliage. They are so grown at Kew, in the Camellia corridor at Chiswick House, and in the conservatory at Hatfield, and nowhere have we seen the beauty of these plants to greater advantage. The luxuriant and floriferous habit of the plant would seem to render it especially suitable for such positions, apart from its extensive culture in pots.—B.

AN IMPROVEMENT IN WHEELBARROWS.

THE wheelbarrow, it is said, was invented by the eminent Italian artist, Leonardo da Vinci. That it was the production of so capable a man is possibly the reason that it has remained for centuries unaltered, and considered so far incapable of improvement. Nowadays, however, our wants are so many and our wishes so exacting, that for some uses the present wheel-



A new Wheelbarrow.

barrow is not satisfactory. In the garden the wheelbarrow is very useful even in its ordinary construction, but in the shape in which it is presented in the accompanying illustration it will be still more useful. The additions and improvements here described are the result of the ingenuity of Mr. Beach, of Hartford, Connecticut. They are as follows:—A rubber wheel-tire, by which more quiet and easy rolling is secured; two springs fitted to the axle, which prevent jolting; a wheel-lifter, or a second pair of longer legs, by which it may be lifted over obstructions by pushing forward the leg-frame and bearing down upon the handles; a movable water-pail hook; drawers for seed, &c.; a seat with a socket for an umbrella or sunshade, to be used while resting; four buckled-strap loops for holding tools; four partitions for various uses; two sliding doors for quickly emptying it of its contents; four baskets fitting into the partitions; and lastly, a movable cover made to fasten by a latch or catch. Each and all of these may be removed at will, except the rubber-tire. Some of these appliances will be found useful for any wheelbarrow, and others are intended for special work in the garden and orchard, where one wishes to have all the tools he is likely to need at hand in a convenient manner. It is really converting a wheelbarrow into a portable tool-house. Mr. Beach writes us ("American Agriculturist") that he has spent three years in perfecting his wheelbarrow, but that he will be sufficiently repaid if the public appreciate his invention.

THE KITCHEN GARDEN.

ASPARAGUS BEDS IN CLAYEY SOIL.

ASPARAGUS, besides having the great merit of bearing for a long season, can be had in good supply over six months in the year, by commencing to force in November, so as to cut the first dish for Christmas. Our forefathers considered it necessary to take as much care in preparing Asparagus beds as they did a Vine border; yet, although its culture is so simple, I do not think that the cultivation of any vegetable is so little understood by the majority as that of the Asparagus. Some look upon its culture as a mystery, and never make an attempt, while others, from the costly preparations they are given to understand it requires, and the uncertainty of success, abandon the idea of cultivating it; but these fallacious ideas may all be dispensed with, and the amateur may cut as good a dish of Asparagus as the professional cultivator, if he will but give a slight amount of attention to its preparation in the different seasons.

Asparagus requires a good depth of soil and plenty of manure; where the soil is shallow, waste sand or any other open material may be mixed with it. When I first came here, I found the garden without Asparagus beds; so I made choice of a sheltered corner, well exposed to the south, and staked out a large square of clayey ground, which I covered with waste sea-sand, that had been used for grinding glass, 2 ft. deep, and on this I placed a good layer of decomposed horse manure; a trench having been formed at one side, the whole was turned over with a good layer of clay thrown on the top to get pulverized for a few weeks, and when this became dry it broke up quite fine, when the whole bed was again turned over and well mixed, and when the sides were squared up the beds stood well up above the ground-level, insuring a good drainage, without which no beds will succeed. This being done in the month of April the alleys were trodden out and the seed sown at once, and no preparation could have been more satisfactory either as regards quantity or quality than these beds have been during the last four seasons. In fact, the secret in high culture is shelter, good drainage, a loose soil, and plenty of good manure.

I prefer sowing the permanent beds with seed in rows 18 in. apart, and as soon as the plants are 3 in. long thin them out to about 12 in. asunder in the row, leaving the most promising; in this way the plants never receive a check and always make up well in the autumn. In planting the beds with one or two-year-old roots April is the best time, when the young sprouts are about 1 in. long—not more (I never cover them more than 3 in. deep), which keeps the crowns strong and healthy and the heads eatable the whole length. During the growing season liquid manure is used by many, but if the beds be well made at first they may be considered self-acting. On the appearance of rain, three or four times in the year I throw a few handfuls of salt over the beds. Asparagus should be allowed to grow in the beds three seasons without cutting, which treatment insures a permanent establishment of the plants, and a good crop may be expected the following season. Great discretion is required in cutting Asparagus, so as to make the season as long as possible. The following is my plan of operations:—Supposing that I have six beds ready for cutting, from three I only cut the finest heads, and leave the remainder to grow, which keeps the roots in action, and strengthens the buds for the following season, but it shortens the succession, and cutting is soon over; the remaining three beds I cut all the heads for the first three weeks, which causes every bud to push and produce a good late crop; in the following season this mode of proceeding is reversed. Any beds that are wanted for forcing the following season, I encourage a good crop of the earliest shoots to grow upon, and after that cut all the remainder to the end of the season, as the early growths make early buds, and the late ones are not wanted, as the roots all go to the refuse-heap as soon as the crop is gathered. Where a quantity of roots is wanted for forcing every year, new beds should be made to take their place; the beds must be covered with littery manure in the autumn to protect the crowns from frost. With regard to forcing, a brick pit or roomy frame on a bed of fresh horse manure or leaves turned over two or three times to

sweeten, or spent tan, answers well for bottom-heat; but the principal agent in producing good heads will be found in strong, well-prepared roots, full of vigour, which have not been cut more than three or four seasons; old worn-out roots never pay for the trouble of cultivation. Well-prepared roots of Asparagus enjoy a bottom-heat of 70°, not more, and as soon as the heads are through the soil, give air as freely as the weather outside will allow, as it bestows both strength and flavour to the plants. Sharp frosty air or cutting winds must be avoided; a good covering on the glass in severe weather is very essential, as it keeps the temperature uniform, which should not be more than 50°. For filling in amongst the roots, nothing is better than some old spent manure, such as has come from the Vine borders, and has been laid for some time previously in a heap; the fibres will then revel in it till the manure becomes quite white, which gives strength to the heads. In giving water avoid liquid manure; a small handful of salt may be put in each can, which benefits the plants without injuring the flavour. JAMES SMITH.

Waterdale.

Smooth-tubered Jerusalem Artichokes.—A correspondent (see p. 486, Vol. X.) speaks of Jerusalem Artichokes as articles of food, and as being unsuited for cultivation by cottagers, on account of their irregular form and the great waste there is in peeling them. I believe this may often be traced to the kind of sets used for planting, which in many cases are nothing more than the refuse of the previous years' crops. If your correspondent will procure a few smooth tubers about the size of hens' eggs, and plant them whole in well-trenched ground, and in lines 3 ft. apart and 1 ft. asunder in the row early in March, and earth up the plants when they are 2 ft. high, he will find, as I have done for many years, that the produce will be smooth-skinned and well-shaped tubers, and by a careful selection of good sets annually, he will be rewarded with heavy crops of excellent Artichokes, of good appearance and quality, without waste.—JOHN CLARKE, *Cork.*

How to Grow Fine Parsley.—Sow the seed towards the end of August in comparatively poor but well-drained soil; and if circumstances prevent such selection, choose the ground which comes nearest to it. It may be sown either in lines where it is to remain, or in seed-beds; but in any case it must be transplanted, for Parsley succeeds much better, and lasts longer in that way than by any other method. It will be fit to transplant in March, and should then be put in whatever positions it is desired it should remain. The plants so transplanted will be found excellent to put into pots and boxes for the winter, as is the rule in gardens where a winter supply of Parsley is indispensable in all weathers, or for any other purposes for which Parsley is used. Edgings of Parsley near a dry walk or alley are desirable for the convenience of picking when the ground is soft and sticky, and will not admit of being walked upon without clinging to the feet, and being thus brought on to the walks.—C. S.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Sowing Early Peas.—In order to gather Peas the last week in May and the first week in June, the following has been my practice for the last thirteen years:—I sow now in boxes, and put them in a cold frame under glass, giving plenty of air at all times. When 3 in. high I plant them out on a warm border, and stick them as the planting progresses. I have this day (Jan. 27) sown Sutton's Kingleader, Dickson's First and Best, and Dr. McLean; the last named is one of the best Peas in cultivation.—R. NISBET, *Aswarby Park.*

—Peas, sown in November, have now tendrils 2 in. long, which makes one almost dread the cold cutting winds which are sure to follow the present mild weather. In the event of frost, what is the best mode of protecting them?—N. F., *Oakham.*

Winter Salad Plants.—Witloof is highly appreciated here for this purpose. We took the roots up in October, and they were treated the same as Carrots. When put into the Mushroom-house the tops soon blanch, and, when mixed with Endive, make a good salad; nor are they to be despised when cooked like Seakale, and used as a vegetable. The Improved Round-leaved Endive has proved the best with us; blanched out-of-doors under small Seakale pots, or placed in boxes in the Mushroom-house for a few days, a good salad may in this way be had by all, even where glass is limited. Owing, doubtless, to the wet, Lettuce plants have done very badly in frames this season.—J. ALLAN, *Ashurst Park, Tunbridge Wells.*

—With me Witloof, Chicory, and Endive are all great favourites. I force and blanch the Witloof in a temperature ranging from 50° to 60°, and I am inclined to think that thus managed the bitterness is less than if it were brought on slower. The Endive is grown in cold houses. I should be glad to know what difference, if any, there is between Witloof and Chicory; they appear as near alike as to be hardly distinguishable. Mr. Gilbert would find a small quantity of Celery improve the flavour of the salad bowl of which he speaks (see p. 56), and with the Tropæolum blooms he should put a few slices of crimson Beet.—N. F. F.

CROCUSES AND MICE.

IN common with other Crocus growers I have suffered sorely from the ravages of mice; they devour my seedlings by potfuls, and my full-grown bulbs by the dozen. The little wretches do not confine their depredations to Crocuses; only a week or two since they devoured a whole potful of bulbs of *Bloomeria aurea*, which I had just received from California, and another of *Brodiaea volubilis*. The house mouse, the long-tailed field mouse, the short-tailed and barb voles, and the common shrew are all, I believe, more or less mixed up in the mischief, the three latter attacking small seedling bulbs; but the greatest depredator of all is the long-tailed field mouse, which abounds in some seasons to a most alarming extent. I once caught seventy in six weeks among my Crocus beds.

My rows of Peas, too, in spring suffer frightfully. Mice are also most destructive pests to the farmer, devouring greedily all kinds of grain. I have not the least doubt that they are far more common than they otherwise would be in consequence of the senseless way in which every species of owl is destroyed. There are four species of owls fairly common in the British Isles—at least they would be so if left alone—viz., the barn owl, the brown owl, and the long and short-eared owls, and all of them live mainly upon vermin—rats, mice, moles, weasels, snakes, &c.—but all are ruthlessly shot down by gamekeepers. All the owls are nocturnal in their habits. The only species which flies in the daytime, and that but rarely, is the short-eared one. At night young partridges and pheasants are safe brooded under their mothers' wings; the owls could not get them if they wished. The brown owl may occasionally pick up a small leveret or young rabbit, but what is that compared with the myriads of mice, young rats, and weasels which it destroys? It is principally, however, in defence of the common buff or barn owl that I take up the cudgels. When I first came to my rectory here my out-buildings were in a very ruinous condition, and I could not afford to rebuild them all at once. My stable had a thatched roof covering a dark loft; through a hole in the thatch a pair of barn owls had free entrance to the loft, and here for several years they regularly reared four or five young ones—in fact, till I was forced to pull the stable down and rebuild it. I have often watched these owls feeding their young ones. For several hours after sunset, every three or four minutes they would bring in a mouse or young rat, or some other kind of vermin. And yet this is the bird ruthlessly shot down by squire, gamekeeper, farmer, and poacher alike, and eagerly bought by every bird-stuffer for the ornamentation of ladies' hats or the manufacture of feather screens. It is unquestionably a disgrace to the country that these things should be permitted. Is there no member of Parliament sufficiently instructed to get an Act passed prohibiting the destruction of the barn owl altogether, and protecting the other three species for the greater part of the year? Upon looking at the schedule of the Wild Birds' Protection Act, I see the term "owl" amongst the rest. Auyhow, it is in this respect a dead letter, and the sooner it is actively enforced the better.—H. HARPUR CREWE, *The Rectory, Drayton-Beauchamp, Trin.*

UNDERGROUND HOT-WATER PIPES.

ALLOW me to offer a few observations on the subject of boilers and underground hot-water pipes with especial reference to Mr. Groom's remarks (see p. 75). It has been my experience, and I find I am not alone, that it is most difficult for amateur gardeners to get any definite information as to boilers and fuel before they have earned their own experience by paying for it. About two years ago I wished to heat a small, very narrow house, some 30 ft. long by 5 ft. broad, and selected for the purpose a common vertical boiler, which I placed in the corner of a coach-house immediately under its work. This boiler heated its quota of 50 ft. of 4-in. pipe fairly well, but the firm from whom I purchased it fitted it with only a 4-in. flue pipe, and the draught was accordingly deficient, and by no possible treatment could I get a coke fire to keep in all night. After a good deal of perplexity I was recommended to use culm instead of coke, and with that fuel there was no difficulty in keeping in the fire from ten o'clock at night to seven o'clock next morning. This heating apparatus would not have been disturbed had I not erected a 12 ft. by 20 ft. span-roofed plant-house some 40 ft. distant from the house already men-

tioned, and I determined to try the experiment of heating both houses with one boiler, although it would have to be connected with each house, owing to the configuration of the ground, by more than 60 ft. of pipe. After a diligent study of the advertisements in THE GARDEN, I obtained the boiler that appeared to me the soundest in principle, and erected it in an outhouse in my stableyard midway between my two houses. It is my firm conviction that in spite of the more than 120 ft. of 1½-in. connecting pipes, the new boiler heats the two houses with the same amount of fuel consumed by the old one to heat the one house. The design of the vertical boiler is simple in the extreme, so simple, indeed, that a great deal more heat passes up the flue than into the water-pipes; the new one is so constructed that the fire heats the water instead of performing any other less desirable function. The old one was fastidious as to fuel, the new one scarcely keeps itself supplied with ashes sufficient for banking, as it clinkers everything. Then, as to the saving of time and trouble, the fire is left for the night during ordinary weather at five o'clock, and a good fire is found burning at half-past seven next morning. By way of experiment I had, some weeks ago, the fire banked up at nine o'clock one morning to see how long it would go; that fire was not touched until after seven a.m. the next morning—more than 22 hour; the boiler was then heating only 50 ft. of 4-in. pipe, and the difficulty was to keep in for so long a time a sufficiently small fire. There is no doubt that long connecting pipes waste a certain amount of heat, but seeing the vast amount of heat wasted in the best boilers by the draught necessary to produce combustion, the heated air being a total loss after it passes out of the boiler, I think the connecting pipes must be very long and very badly fixed to turn the balance of heat-saving in favour of a second boiler with a second heat-wasting flue. The old boiler, so simple in its design, and so wasteful in its work, has been erected in my cellar, where it occasionally heats with a new 6-in. flue-pipe about 40 ft. of piping in a conservatory some 15 ft. distant, and a coil of 40 ft. more in my entrance hall—through about 80 ft. of 1½-in. pipe, including flow and return. As a continuous fire is not needed, and the boiler can get attention when required, it answers the purpose, there being no lack of heat generated; but if ever it breaks down I shall certainly study THE GARDEN advertisements once more and look out for a boiler combining economy in fuel and strength in construction rather than simplicity of design, which can scarcely be obtained without corresponding loss of heat. I may say, in conclusion, that I have not a particle of coke on the premises.

A. R. H.

NOTES AND QUESTIONS—VARIOUS.

Early Broad Beans.—The earliest and best long-podded Bean is the Seville; it is four or five days earlier than Early Long-pod, and I grow it for my earliest crop.—W. G., *Bradford, Dorchester.*

Opuntia vulgaris Hardy.—This plant is quite hardy in the Paris Garden of Plants, where it has spread into a wide, vigorous tuft. It seems a somewhat stronger grower than *O. Rahnesequiniana*. The plants are protected with a wire cage to prevent injury to the succulent leaves, which otherwise would be in danger of disfigurement in a crowded garden.—V.

Premier Runner Bean.—What is the experience of cultivators in regard to this Bean? I was induced last year to try it, but I must admit that it proved worthless. Instead of sowing my usual quantity of the Scarlet Runner I sowed two-thirds Premier with the result just stated, while the Scarlet Runner by the side of it bore, as usual, a good crop.—R. B. FULLER, *Highbury.*

Veitch's Self-Protecting Autumn Broccoli.—"J. W." (see p. 68) wishes to know at what time I sow this Broccoli, as with him it does not come in at the same time as with me. Allow me to state that I sow in the second week in April in the open border, in which the plants succeed perfectly, with two or three good waterings about planting-out time should the weather prove dry. Mine were planted on a south border.—W. G., *Bradford, Dorchester.*

Ficus repens in the Open Air.—As in various cases about London, *Ficus repens* has crawled out of one of the houses in the Paris Garden of Plants, and covered the adjacent walls in all directions. This proof of hardiness is, however, scarcely wanted, as in Colonel Turbe's garden at Woodstock, in Ireland, it has long been a vigorous wall plant. It would be well to know if the more delicate and graceful creeping Fig (*F. minima*), introduced by Mr. Hogg from Japan, is also hardy; if it prove so, it will be a pretty addition to the rock garden and hardy Fernery.—V.

Propagation of Double Primulas.—Few plants are more useful than Primulas, more particularly the double kinds. We have just now (Jan. 27) plants of them in full bloom which have been in that condition ever since last October. We strike them now and onward until May. We divide the crowns, taking care to secure to each piece a heel, and then put in single thumb-pots, which we plunge in heat under hand-lights. The secret of success is to give no water until they are struck.—R. GILBERT, *Burghley.*

Royal Aquarium, Westminster.—Mr. Bennett, of the Rabley Nurseries, Shenley, Herts, has been appointed to succeed Mr. Wills as floral director of this institution. Several alterations as regards the floral display are contemplated, and amongst others the permanently-planted side beds, already alluded to in our columns as being so difficult to maintain in health, are to be done away with. The floral display in this part of the building will, however, continue to be carried out in the shape of ornamental, rustic, and fancy wire designs, the idea being that in this way more variety of colour and a larger quantity of blooming plants can be introduced than heretofore.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

SOME OF THE PRESENT ASPECTS OF GARDENING.

Nothing is immutable, nothing stationary; nor is this a subject for regret, for without changes there can be no progress. Judging from present appearances, there are not wanting signs that in ornamental gardening the bedding system, as it has been called, has passed its zenith, and that there is a prospect of its being reduced at no distant day to reasonable limits; in fact, in many places, reductions have already been made, to the satisfaction and advantage of all concerned. I admit that the bedding system has, in a certain sense, given an impetus to gardening, but in far too many places it has been at the expense of other and more important matters. A writer in "The Gardener" for January last says:—"There never was a time when so many places were to be met with in a half ruinous condition as now, weeds in many cases overrunning the less than half-cropped ground in kitchen gardens;" this, he adds, "may be seen in the majority of places in every county"—a result, doubtless, either directly or indirectly traceable to the undue prominence given to carpet and other beds of a similar character, so extensively used for summer decoration. Vegetable and fruit-growing have had to be neglected from the sheer impossibility of getting through the work. Vineries and Peach-houses have been so filled up with bedding plants during winter and spring, as to almost preclude the necessary attention being given to the inside borders. And after all, what good has been effected beyond encouraging a vitiated taste for lavish display? A constant repetition of the same designs, planted with the same materials, has destroyed all individuality as regards independent thought or action, and has had a baneful influence upon the cultivation of all plants that could not be turned to account in the way of brilliant display. The future, however, is full of hope that this state of things will be altered, at least to some extent, and in that case the culture of fruit and vegetables will doubtless receive increased attention, not merely for the purpose of astonishing people at exhibitions—although it is well to have the best results of our labours frequently set before us—but rather to supply abundance of fairly good produce for daily use at home. Summer flower gardening, however, need not be wholly dispensed with; on the contrary, a few beds tastefully planted, properly situated, and thoroughly well managed, have always a striking effect during favourable weather in July and August; it is the too prevalent tendency to cut up every bit of green turf into stars, diamonds, and similar devices, and to encircle every bit of shrubbery with ribbon borders, that is so much to be deprecated. There may in some gardens be architectural features in connection with the mansion that will not bear reduction; these must remain, but in the majority of cases no such necessities exist. Where the design, from its intricacy, will not bear reduction without destroying its proportions, it is best to wholly discard it, and lay down a few plain, simple figures of a size proportionate to the place. I always think flowers look best on cool, green turf; and how easy it is when the designs are laid down on a turf base to effect an entire change. A large garden may, in the matter of brilliancy, eclipse a small one, but size or extent is not essential to beauty, although, in a certain sense, it may be to magnificence.

There is, perhaps, no department in gardening more important, or that requires more knowledge or judgment than the selection and arrangement of the trees and shrubs that are to form the permanent adornments of the home grounds; not only is a thorough acquaintance with the soil necessary, but also a full knowledge of the life history of each species which it is intended to plant, in order to secure the necessary conditions to obtain a successful result, and it is probably due to a lack of this knowledge that cultivators still continue to make use of only the commonest trees and shrubs that have been proved to flourish in any soil or situation. This is to be regretted, for the trees and shrubs form what may be

termed the outside furniture of the residence. Other features, such as beds of flowers, come and go, but the trees and shrubs are permanent, and, viewed in this light, the subject is deserving of more consideration than it receives. In far too many places the shrubberies are simply eyesores. There are positions in which a tangled thicket may be appropriate enough, but near the mansion, or in juxtaposition to the overwrought masses of flowers, thickets consisting of common-place materials produce an incongruous effect. In the majority of cases it would not cost much to make openings here and there in uninteresting, monotonous blocks or masses of plantation, and introduce some of the better kinds of deciduous and evergreen trees and shrubs. Of course some pains must be taken to give them a fair start; all old roots must be grubbed and picked out, and a little fresh, loamy soil, if possible, brought in which to plant them. Many of the hardy trees and shrubs introduced during the last thirty years would even, if sparingly planted, quite alter the character of our garden scenery. Of course, in some places there will be difficulties to contend with; trees and shrubs have their peculiarities like all other living things; some will only flourish on the side of a hill where the drainage is free and rapid; others again delight in moisture, or require to be sheltered from the keen biting blast. But the best kind of knowledge comes by experience, and how interesting it is to watch the annually increasing beauty of a handsome young specimen tree or shrub when it has room for a fair amount of development, so as to show its true character! Such subjects are capable of giving far more interest and satisfaction than can ever be obtained from beds of Pelargoniums or of similar plants, showy though they may be. There is, too, a steady demand springing up for old-fashioned plants and flowers, and in connection therewith we can have our rock garden, which can either form a part of the wild garden, or be a distinct feature artificially created. Rockwork should not, however, be placed under the windows of the mansion, but should be erected in a retired spot, where the surface is naturally uneven. The most perfect rock garden which I ever saw was one hewn out of the natural rock; it was approached by steps and winding walks, disclosing fresh objects of interest at every turn; and the almost perpendicular and sometimes overhanging rocks were richly draped with creepers. The hand of time had also covered the rough faces of the stones with Mosses and Lichens, which, to the student of Nature, had an interest of their own apart from the choice gems gathered there from Alpine regions, and which were cultivated in pockets and nooks. Among the stones and their decaying débris, with compost added suitable for each species, many classes of hardy plants may appropriately find a place in a rock garden or in its immediate neighbourhood, and there should be a tank or basin for aquatic plants, in order that plant-lovers of all kinds might meet there as on common ground, sure of always finding something to interest and instruct.

E. HOBDAV.

Hardy Wall Shrubs at Kew.—The single-flowered *Kerria* (*Corchorus*) *japonica* is now in beautiful condition on a wall in the herbaceous ground at Kew, its leafy autumnal shoots being studded with golden star-shaped flowers. Close beside it a vigorous specimen of the Himalayan *Berberis* (*Mahonia*) *nepalensis* is very attractive, its tufts of thick, glaucous, pinnate foliage being surmounted by large panicles of yellow flowers. The Whitewashed Bramble (*Rubus biflorus*) is even more interesting now than during the summer, but its bare white stems, as seen against the brickwork, are not nearly so attractive as when contrasted with Ivy or other evergreen wall shrubs. *Cydonia japonica* is, of course, covered with rosy-scarlet flowers and coral-tinted buds, and a plant of the orange-scarlet-berried *Solanum pseudo-capsicum* has quite a fresh appearance on the open wall, and is bearing a few berries. Two of the most beautiful and desirable of all the wall plants at Kew are *Phygalea capensis* and *Veronica Andersoni*, the latter being still attractive, as are also the golden and silvery-leaved varieties of *Eunonymus* on the sunny walls of the Economic-house. *Solanum jasminoides* always flowers well on the wall of the herbaceous ground, and it ought to find a place in all sheltered London gardens. In some of the villa gardens near Kew railway station it may be remarked that excellent use is being made of the common *Laarustina*, the white flowers of which are judiciously contrasted with the scarlet-berried *Skimmia japonica*.

B.

NOTES OF THE WEEK.

IRIS RETICULATA PURPUREA.—A bed, planted with this winter-flowering Iris, may now be seen in Ware's nursery, Tottenham, studded with bright purple, orange-streaked blossoms. When grown in rich, well-drained, sandy soil, as it is here, this is undoubtedly one of the most valuable hardy, early-flowering bulbs which we possess. In pots it would also be found useful for the decoration of the conservatory for a few weeks in midwinter.—C.

FORCING THE WHITE LILAC.—It is pleasant just now to enter one of the houses devoted to the forcing of White Lilac in Paris, the delicate odour of the opening blossoms pervading the darkness. The plants are placed on pots and benches, kept warm and moist, and the glass covered with straw mats, so as to keep the house quite dark.—V.

NEW DOUBLE CHINESE PRIMULA.—This is now in flower at Pine-apple Place, and seems likely to prove an acquisition. Its flowers, which are large and double, and of a rose-lilac colour, margined with white, are produced in whorls on vigorous stalks that rise well up above the leaves, which are elegantly cut. It is named Miss Eva Fish.—M.

ODONTOGLOSSUM CRISPUM.—A fine plant of this lovely *Odontoglossum* growing in a cool house at Leyton is now bearing five or six strong flower-spikes, on each of which are from nine to twelve large fully-expanded blooms. Mr. Ward asserts that he has never seen without flowers of this Orchid either winter or summer during the past four years. Plants of this description can scarcely be too extensively grown or too highly prized, when we consider that any one who possesses a warm, moist greenhouse may grow them successfully.—C.

THE JAPAN QUINCE IN GROUPS ON THE GRASS.—One of the prettiest effects now to be seen in the gardens of Paris is a little colony of bushes of the Japan Quince (*Cydonia japonica*) irregularly grouped on the Grass near to, but quite free from, the margin of a shrubbery. This is one of the ways in which our beautiful hardy flowering shrubs may be best enjoyed—one of the alternatives from the dismal system of crowding everything together.—W.

ROGIERA GRATISSIMA.—This seems to be as scarce in gardens as *Luculia gratissima*, notwithstanding the fact that it is much more easily managed. Several well-grown specimens of it in the gardens at Wimbledon House are now loaded with blossoms, which are borne in large trusses similar to those of *Habrothamnus elegans*. The *Rogiera* is, however, not quite so rampant a grower as the *Habrothamnus*, and its flowers are deliciously scented.—S.

FICUS LANCEOLATA.—This forms a good companion to the well-known India-rubber Tree, so useful in large towns for window decoration. *F. lanceolata* which is a somewhat more compact-growing plant, has long, narrow, lance-shaped leaves, graceful in appearance, and will stand smoke and dust equally as well as those of *F. elastica*. Mr. Reeves, of Acton, who has quantities of it, expects to find it one of his best market plants.—W.

IRIS STYLOSA AT KEW.—A strong tuft of this evergreen winter-blooming Iris is just now in flower in the long herbaceous border at Kew, where it bears some ten or twelve fully-expanded blossoms. It is one of the largest-flowered and most ornamental of all Irises, and it may be added that blooms of it cut in the bud state open well and retain their beauty for two or three days in a glass of water.—B.

A GRACEFUL INDOOR CLIMBER.—*Clematis indivisa* is now beautifully in flower in the greenhouse at Kew, where it covers a rafter 15 ft. or 16 ft. in length, its drooping leafy branches being thickly studded with star-like flowers of snowy whiteness. Each six-rayed blossom is the size of half-a-crown, and being freely produced among glossy leaflets, the effect is excellent. As a climber or wall plant for a cool greenhouse this *Clematis* has few equals at this season, and it would doubtless succeed out-of-doors in the mild climate of Devon, Cornwall, or the Isle of Wight, where it would be found useful, flowering, as it would probably do, a month or two before its four-rayed ally, *C. montana*.—B.

HARDY FLOWERS IN THE ISLE OF WIGHT.—The following, gathered from my garden at Bonchurch to-day (Feb. 7), will serve to show what our climate has been this winter. Among them will be found several beautiful forms of *Narcissus tazetta*, hardy Heaths, *Gazania splendens*, Clove Pinks, *Cytisus racemosus* and its near ally *Coronilla glauca*, Persian Cyclamen, *Cliantus panicus*, Mignonette, and a lovely bloom of General Jacqueminot Rose, together with Stocks, *Anemone coronaria*, Purple Mesembryanthemum or Fig Marigold, *Vinca major*, and the ever-blooming *Veronica Andersoni*, one of the most floriferous of all sea-side shrubs. The General Jacqueminot

Rose is from a plant trained in a south aspect, but the Clove is from quite an exposed situation; the *Cliantus* grows against a wall facing the east. I have never seen during fifteen years' experience in the garden here so many plants in blossom so early as we have this season.—J. BANTING.

DENDROBIUM CRASSINODE AT KEW.—A specimen of this delicately coloured species is just now the most attractive of all the Orchids in the Kew collection. It bears about forty pure white, carmine-tipped flowers on four of its thick knobbed pseudo-bulbs, and seen in this condition it is certainly one of the most beautiful of all *Dendrobes*.—S.

ANTHURIUM SCHERZERIANUM ALBUM.—This white-flowered form of a well-known and extremely ornamental stove plant is now blooming abundantly with Mr. Ward at Leyton, and although it is questionable whether it will ever become so universal a favourite as the scarlet-flowered kind, yet the two intermixed are strikingly effective.—C. S.

FERULAS AT TOTTENHAM.—These are planted at Ware's on a large earth-mound, which their bright green and feathery-looking foliage completely covers. They commenced to push through the ground late in autumn, and all through the winter have formed an interesting feature amongst hardy plants.—P.

DENDROBIUM EUDOCHARIS.—This new hybrid *Dendrobe*, raised by Messrs. Veitch & Sons, is now flowering freely in their nursery at Chelsea. Its flowers are of the purest white with a yellow and purple-tinted throat; it is a cross between *D. japonicum* and *D. heterocarpum*, and partakes of the strong-growing habit of the latter. It will doubtless prove a useful addition to winter-flowering Orchids.

HONEYDEW IN PLANTS.—Dr. Hoffman, of Giessen, has recently published the results of his observations on the formation of honeydew upon the leaves of plants, and has come to the conclusion that it is not to be attributed to aphides or other insects. A healthy *Camellia*, 1½ ft. in height, without blossoms, which afforded an instance of the phenomenon, was found to be entirely free from insects. The so-called honeydew consisted of a sticky, colourless liquid, which possessed a sweetish taste, and contained, principally, gum.

GARDENING IN VICTORIA.—The returns for 1874-5 show 11,083 acres under gardens and 6317 acres under orchards, as against 9912 acres under gardens and 6148 acres under orchards in the previous year. Ten acres under Olive trees and 6 acres under Mulberry trees were recorded in 1873-4, but no Olive grounds, and only 1 acre under Mulberry trees, appear in the returns of the year under review.

NARCISSUS TAZETTA FLORIBUNDUS.—When in Cornwall a few years ago I obtained some of the roots of the white-limbed yellow-corollaed *Narcissus tazetta floribundus*, which grows so freely at St. Michael's Mount and elsewhere. These roots always throw up their flower-stems before Christmas, but are usually destroyed by frost; this year, however, I have a fine clump in exquisite bloom still continuing to throw up flower-stems. In the extreme south surely this early-flowering plant might be grown profitably for its flowers, which might be gathered and sent to market in quantity. Spring-flowering plants are plentifully in bloom, but I have nothing more charming than this *Narcissus*.—L. C., *Sydenham Hill*.

DOUBLE-FLOWERED PEACHES.—Few plants used for forcing are more effective when in flower than these, yet they are comparatively seldom met with in ordinary gardens. In a cool house at Kew may now be seen many varieties of them, consisting of white, pink, and rose-coloured kinds, the leafless branches of all of which are thickly set with bloom. The plants range from 6 ft. to 8 ft. high, and from 2 ft. to 3 ft. through, and contrast well with the numerous kinds of ornamental-foliaged and other flowering plants with which they are associated.—S.

HARDINESS OF CRINUM CAPENSE.—Both the forms of this handsome Amaryllid, alluded to by Colonel Trevor Clarke (see p. 51) are quite hardy in the open border here (Wigtonshire), and flower freely every year. It never occurred to me that they should be treated as aquatics; they grow luxuriantly in deep but well-drained peat, occasionally getting a bucket of water in summer. The price is very much less than your correspondent mentions. The Dutch nurserymen quote them at 5d. each for the rose and 9d. for the white, and they are well worth importing. As the bulbs are very large, the base of each should rest 1 ft. under the surface. The foliage is bold and ornamental, but if the plants be in a small garden or near a window it is a good plan to plant *Commelina cœlestis*, *Nemophila insignis*, *Lobelia cardinalis*, or other graceful bright flowers round the *Crinum*, at a distance of 2 ft. or 3 ft., which come up through the long leaves and form a beautiful group.—H. M.

HARDY FOLIAGE FOR LARGE VASES.

At this season of the year some little difficulty is often experienced in obtaining foliage—and especially hardy foliage—for arranging in large stands and vases along with cut flowers. In sheltered positions the common Hart's-tongue (*Scolopendrium*) and Hard Ferns (*Polystichum*) still furnish fresh and somewhat stately fronds, admirably adapted for such purposes; and as a contrast to their vivid greenness, I can find nothing at all equal to the young silvery leaves of the Globe Artichoke, which I highly esteem as a fine-foliaged plant, even in shrubbery borders and wild gardens grouped with *Ferulas* and other early-growing fine-foliaged Umbellifers. Leaves of the Artichokes may be selected of various sizes from 9 in. to 2 ft. in length, and, apart from their delicate glaucous or silvery tint, their gracefully arched contour is an additional advantage. I have now foliage of this plant quite fresh, after having been cut for three weeks and used for several relays of flowers. I have placed the small leaves or points and sprays cut from the larger ones in shallow dishes of early blooming Crocuses, Snowdrops, Violets, *Iris reticulata*, *I. stylosa*, and *Hellebores* of various kinds, and I find that in this way the arrangement is far prettier than when exotic Ferns are employed. Some of the larger leaves in a tall vase look well wit' a drooping fringe of the common Ivy



The Artichoke as a Fine-foliaged Plant.

around the sides, and here and there a few clusters of the coral-berried Gladwyn Iris. A duplicate vase is filled with Ivy spray and Iris pods, a long-stemmed flower of the white Arum Lily being inserted amidst the green-leaved Ivy. The annexed illustration shows the general effect of the silvery-leaved Artichokes as seen at this season; and of all hardy fine-foliaged plants this must be regarded as one of the most distinct and useful during the winter and spring months. B.

Cordyline vivipara Hardy in Ireland.—This species of *Cordyline* has proved perfectly hardy in the south of Ireland during these last two years. Last autumn twelvemonths I had a basket of it, which was very badly infested with mealy bug, so badly indeed that I determined to throw it away, which I accordingly did. The place where it happened to be thrown was immediately in front and partly under a Laurel hedge which surrounds the frame ground. Here by chance it remained undisturbed all through the following winter and spring, and I was certainly surprised to see it show signs of life in the ensuing May. Although it must have been frozen during the winter, early in the month just named it began to send out shoots from the old ball, these, as they advanced, fastening to the adjacent shoots of the hedge from which they hung very gracefully. The plant continued to grow vigorously all through the summer and autumn, and up to the present time it is looking perfectly healthy. I should have stated, however, that as soon as I noticed signs of life in it I had some soil placed around the ball, but otherwise it was in no way disturbed. So satisfied am I of its hardiness that in the coming spring (about the end of April) I purpose planting out several clumps of it permanently in different positions. I agree with Miss Hope (see page 61) that the stove is not the most suitable place for it, but it is admirably adapted for hanging baskets in a conservatory; this combined with its utility as a room plant, should render it a general favourite.—E. R. Q. P.

THE PARTRIDGE-BREADED ALOE.

(A. VARIEGATA).

THIS handsome, early spring-flowering plant, is so interesting, both as regards foliage and flowers, that special attention ought to be directed to it. It is a hardier plant than is generally supposed, for in my cold greenhouse it invariably gets frozen during very severe weather, but then I always keep it very dry during the winter in common with other succulents with which it is associated. It is a singularly strong-rooting plant, and when well established throws out numbers of suckers at the end of a long vascular growth, which frequently cannot be detached from the parent plant without taking it out of the pot. These suckers, if potted off singly in small pots, soon acquire a considerable size if kept in a warm, moist place for a time. A suitable soil for it is one made up of sandy loam and a fourth part of dry mortar beaten up into a rough powder. In order to increase its size stove treatment is requisite, after which, to secure a good head of bloom, it should be transferred to an ordinary greenhouse. If required to flower, the plant must be strong and richly clad with succulent leaves, which in a good plant are handsomely marked. My best plant is in a 24-sized pot, which it has occupied for two years without change, and as it is in a perfect state of health it will not be necessary to shift it: it produces every year three or four fine spikes of flower. It is probable that if the plant had full exposure and a dry period during July and August, and afterwards a sunny shelf in a stove, with a fair supply of water, it would produce a larger quantity of flowers than when grown entirely in a cold greenhouse. It is an excellent window plant, inasmuch as its thick fleshy leaves may be scrubbed with soap and water to get them clear of dust without injuring them. It will bear great exposure to sunshine, and it may be kept dry for a considerable time without injury. It is a plant that should be distributed amongst the denizens of thickly populated cities and towns by those interested in promoting window gardening, for, as far as its foliage is concerned, it is as pleasing in character at midwinter as at the height of summer; and it appears to be as little affected by damp as it is by sun-heat and drought. D.

Hedychium coronarium and its Culture.—It is to be regretted that this beautiful stove plant is not grown more extensively. The little trouble entailed in its cultivation, and the freedom with which its flowers are produced, together with their delicious fragrance, should render it a universal favourite; nevertheless it is seldom seen even in good collections. Let a plant of it be procured now and started into growth. A soil consisting of equal parts loam, leaf-mould, and dry cow manure, with a liberal addition of silver sand and charcoal broken fine, will be found to suit this plant perfectly. The size of the pot used must of course be regulated by that of the rhizome to be potted, but as a general rule it is safest to employ a rather small-sized pot in proportion to the size of the root, as there is in that case less danger of the soil becoming sodden before the plant starts into active growth. I need scarcely say that when dormant water should be applied with caution, but when once growth has fairly commenced, too much can scarcely be given. During spring and summer it should be shifted into larger pots as may be required, but at all times be careful to supply plenty of drainage. As the autumn advances it should be induced to go to rest, by placing it at the coolest end of the stove, and gradually withholding water, and in this dormant state it should be wintered. If properly treated during its season of growth, the advancing heat in spring and summer will be sufficient to induce it to flower. A temperature of 55° will suit it in winter, and one ranging from 60° to 80° during its period of growth—the former to be accompanied by a dry atmosphere, the latter [by abundance of moisture. This *Hedychium* may be readily increased by division previous to being started into growth in the spring. *H. maximum* and *H. Gardnerianum* are also species well worth growing: the former bears white flowers similar to those of *H. coronarium*, but is a stronger grower; the latter produces yellow flowers and is also a strong grower; the flowers of all the three are deliciously fragrant. The treatment recommended for *H. coronarium* will be found to suit all the other species.—E. R. Q. P.

Rose Garden.—I am just now engaged in remodelling our Rose garden, and should like the opinion of some good rosarian as to the advisability of planting stock rather than worked Roses, budding them of course next summer.—R. GILBERT, *Burghley*.

THE FRUIT GARDEN.

LARGE v. SMALL-FLOWERED PEACHES.

At this season of the year Peach-houses form one of the most attractive sights in the fruit-forcing department, not only on account of the individual beauty of the blossoms, but for the promise of an abundant harvest of fruit which they usually present, for under glass few plants that are grown for their blossoms alone can rival the Peach in the abundance of its floral wealth, which frequently presents a difficulty in the way of pruning by the absence of growing or wood buds to which it is desirable to prune. To a casual observer the large-flowered section, of which the Noblesse is a prominent type, always presents the most inviting aspect; the petals, being large and showy, seem to denote a much more abundant crop than an equal number of flowers on the small-flowered section, of which the Violette Hâtive and Stirling Castle are well-known and highly-esteemed examples. Yet I have observed on many occasions, more especially in early forcing houses, that the small-flowered section set much more freely than the large, the pollen being usually much more abundant; in fact, the pollen of the small-flowered section is more relied upon for setting the large ones than their own pollen. Some difference of opinion exists as to the merits of what may be termed the dry and wet methods of treating Peaches and Nectarines when in flower; I adopt the former and am well satisfied with the results, but probably all other points being equal, the same amount of success would attend either method if skilfully applied. In selecting varieties for a house intended for early forcing, precedence should be given to free-setting kinds of robust habit like the small-flowered varieties named above, as they cannot fail to give satisfaction; for although I consider the Noblesse and similar large varieties excellent as midseason or late-house varieties, they are by no means so satisfactory for early forcing. There are many new varieties highly recommended for early work, but at present I cannot speak confidently of their merits. Amongst the large-flowered section there are few that excel the Grosse Mignonne, either for the quantity or quality of its produce. There is one advantage in forcing Peaches which does not attend the culture of many subjects under glass, viz., the health and well-being of the trees are more generally insured than in the case of those in the open air. Of course an excessive and unseasonably early forcing will eventually destroy any plants, but as a rule Peach culture under glass is one of the most successful in fruit-forcing generally. My impression is that the thorough ripening of the current year's wood is the primary cause of success under glass, and a want of it is the forerunner of most of the evils from which trees grown on open walls eventually suffer.

Henham,

JAMES GROOM.

LATE GRAPES.

I DIFFER from Messrs. Grieve, Wildsmith, and Fish upon some points in regard to these, but especially as to placing Lady Downe's first in order of merit among late-keeping sorts. As a cultivator of Grapes for the last twenty-five years, I have found nothing yet to surpass Gros Colman. I place it first in my list of late-keeping black Grapes for three reasons, viz. — (1) size of berry; (2) size of bunch; (3) for duration or long-keeping qualities; and the late Mr. W. Leaf, of Park Hill, Streatham, considered it first in point of flavour in the class specified above, and he was an authority and a connoisseur in Grapes. Next to Gros Colman, I place Alicante; it is what cultivators term a good feeder, easy of culture, sure to bear a crop—more certain perhaps than almost any other Grape, not excepting Black Hamburg. With me it is always first-class in colour, keeps better than Lady Downe's, which has a tendency to shrivel; it is a well-shouldered, good-coloured, long-keeping kind. I place third Mrs. Pince's Black Muscat, a Grape which has hitherto had but a partial trial. In the class in question it has no equal in point of flavour. I have cut many bunches of this delicious Grape in January, but it is not so certain as the foregoing in point of crop, which is an important consideration with those cultivators who have but a small house and a large demand to supply. I place fourth Lady Downe's, which is inferior to the last-named in flavour and size of berry and bunch. Madresfield Court I could not classify in this list. The accompanying Table may possibly more fully

explain the respective positions in which I place these Grapes:—

	Flavour.	Size of Bunches.	Size of Berry.	Colour.	Quantity.	Keeping Qualities
Gros Colman ...	1	1	1	1	1	1
Alicante	2	1	1	1	1	1
Mrs. Pince	1	1	1	1	2	2
Lady Downe's ..	1	2	2	1	-	1

J. PEED.

Pruning Gooseberries.—Many complain that birds strip the buds off their Gooseberry bushes, and on making inquiries it usually turns out that the bushes have been pruned about Christmas, and in some cases even earlier. This may be termed courting disaster. We never prune here until the bushes are bursting into leaf, and yet we always have heavy crops. It is a good practice to get work as forward as possible during the winter; but some discretion should be exercised as to the right and wrong subjects to be dealt with, or more harm than good may ensue. As regards keeping bullfinches from destroying buds, the best remedy is powder and shot. All kinds of guards except clove netting are useless.—J. GROOM, *Henham*.

Forking amongst Strawberries.—An old Strawberry-grower is scarcely just in his remarks (p. 86) concerning this practice as recommended by Mr. Baines, as the latter was careful to say that "with the exception of loosening the ground to let the rains in, the less digging the better." Mere surface-forking, however, as recommended by Mr. Baines, can be productive of but little injury to Strawberry plants. It is obvious that, during the fruit-gathering time and the after-cleaning off of weeds and runners, that the soil between the plants must get exceedingly hard, especially in the case of stiff soils. Now admitting that in the work of forking a few of the surface-roots are disturbed, do not the remainder and the entire plant generally derive great benefit from the admission of warmth and air to the soil? Still farther, does not the top-dressing of manure, on which your correspondent lays so much stress, get more speedily incorporated with the soil, and consequently food for the roots, than if the surface remained hard and unbroken? And if a few roots be injured, how many fresh ones are thereby induced to grow?—A. DEAN.

—"R. S. C." asks how Strawberries are to be dug without disturbing the roots. Near the collars of the plants the soil should not be moved deeper than would be done by hoeing; further away, in the more central space between the rows, where the roots are fewer and deeper, and where the ground has been more solidified by treading upon it, forking a few inches deep will do little harm. What Mr. Myatt does on his land, rendered comparatively porous and open by the large quantities of manure which market gardeners use, is a very different thing from that which is necessary to be done on newly broken-up clayey soils, which are so adhesive, that through trampling upon them at gathering time, weeding and clearing away runners during the summer, they become impervious to rains, almost as a mass of concrete, especially where the land slopes; it is on such ground as this alone—as "R. S. C." might have seen had he read what I said on the subject attentively—that I advocate a little surface-stirring. On such soils as these, where the precaution has not been taken of breaking up the surface in the way I have described, so as to allow the rains to penetrate them, I have seen in a dry season half the plants die right off a fortnight after the crop was gathered. Strawberry culture with me has been a hobby: I have grown Strawberries successfully on all sorts of land, from light sandy loam and soils of a peaty nature, to the heaviest clay, and I have found it necessary in this, as in other matters pertaining to gardening, to adapt my practice according to circumstances, without which good results need scarcely be expected.—T. BAINES.

Fruit Prospects.—As far as blossom-buds are concerned everything is as yet most promising. Nuts and Filberts are literally laden with male and female blossoms. The buds of Apricots are just showing colour, and Peaches and Nectarines are swelling fast. Apples, Pears, and Plums are not much more forward than usual; for, although we have had such a mild, wet winter the absence of sunshine has somewhat checked vegetation. The protection of choice fruits will soon require attention, and whatever covering is adopted, it should be got in readiness without delay, as bright days, when they do come, will probably be followed by frosty nights.—J. GROOM, *Henham*.

Preservation of Fruit.—De Luca states in the "Répertoire de la Pharmacie," 1876, as the result of repeated experiments, that fruit will keep for a longer or shorter time in close vessels, whether the air-space within the vessels is filled with carbonic acid, or hydrogen, or ordinary atmospheric air, or is a vacuum; that fruit so placed undergoes a sort of slow process of decomposition by disengaging carbonic acid and sometimes hydrogen, and forming alcohol and acetic acid without the interposition of a ferment; that in air-tight vessels the process of decomposition is less complete, owing to the increased air-pressure set up within the vessels by the disengaged gases; that flowers and leaves act like fruit under the same conditions; that fruit, flowers, or leaves in closed vessels may be kept in a state of imperfect preservation for some time, either in carbonic acid, hydrogen, or atmospheric air, by increasing the air-pressure sufficiently; but although these outward appearances may remain unaltered the taste and smell will be impaired.

VILLA-GARDEN ARCHITECTURE.

LANDSCAPE GARDENERS have long known how to adorn our gardens with turf and tree beauty; but too often the house itself, in the hands of speculative builders, is far from being beautiful, and on that account has to be hidden as much as possible by vegetation, instead of being itself an object of interest, contributing its due share of effect to the landscape in which it is placed; Bacon, indeed, tells us that men came to "build stately" sooner than to "garden finely;" but the oft-quoted saying is no longer strictly true. The annexed illustration, from a sketch made on the platform of the Wandsworth railway station, shows how the builder's art (albeit borrowed from more sunny climes) may be made agreeable to the eye and by no means an undesirable object in a garden landscape. The garden itself is shut in by a varied fringe of trees, and at the time when the drawing was made—one sunny morning during the past summer—the principal tower, in its setting of purple, gold, and olive-green leafage, and associated with tapering Poplars, formed a feature unhappily too rarely met with in the neighbourhood of our large towns. At the present time one side of the Common at Wandsworth near the railway station is fringed by a belt of forest trees; but among these the builder is at work, and next summer they will doubtless be exchanged for a row of red brick houses. The same course was pursued at the Crystal Palace, to the utter ruin of one of the finest garden sites in the world. We have at command the vegetation of all temperate climes wherewith to enrich our gardens with both form and colour, but much of this beauty of vegetation is lost through being too often associated with ignoble modern buildings. Amongst living ornaments with which our gardens abound, trees gain most by being associated with appropriate surroundings. A Weeping Willow, for example, on a dry suburban lawn, is necessarily inferior as regards effect to a similar tree planted by a brookside, and while a sombre Yew is rightly placed near a church porch or old abbey wall, how different are the impressions which it produces when contrasted with the bare walls and iron railings of a modern villa! The trees in the annexed sketch consist only of the most common types, but they are amply sufficient, when associated with good architecture, to produce an agreeable effect in a landscape, otherwise of the most common-place character.

F. W. B.

Camellias Out-of-doors at Llanover.—We have Camellias here which have been the admiration of all who have seen them. One measures 15 ft. in width and 10 ft. in height. This year it has been later in coming into bloom than usual. The first bloom was cut from it on January 4, and we have been cutting two or three times weekly ever since, and there are still some 400 or 500 flower-buds on the plant. The old double white kind, planted against the east end of a Pine pit, does remarkably well, and it is coming finely into bloom. Last year we cut from it eight dozen flower-buds; another Camellia, a scarlet kind, grows on a wire trellis exposed to all weathers, and, notwithstanding the hardships to which it is subjected, it becomes covered with beautiful bloom every April. In my opinion Camellias are perfectly hardy if properly planted and well attended to during the summer months.—EDWARD M. DAVIS, *Llanover, Abergavenny.*

THE EDELWEISS AT DANGSTEIN.

HAVING read "H. A. D.'s" remarks (see p. 42) in reference to this plant, I have thought that some account of ours at Dangstein might prove interesting. Towards the end of 1874, Lady Dorothy Nevill had a bouquet of Edelweiss flowers given her by a friend, and wishing to preserve it in a fresh state as long as possible, she had it placed in water. The thought having struck her one day that some of the flowers might contain seed, she examined them, and found her surmise to be correct. After making this discovery, she carefully changed the water herself and daily collected the seed, some of which was sown immediately, while the remainder was kept until spring. It was sown—in both instances—in shallow pans in a compost of sandy peat, leaf-mould, and brickdust, and the pans were placed in a cool orchard-house, where the seeds germinated by scores, those sown in spring turning out the best. The seedlings remained in the pans until autumn, when they were transplanted three or four together into small thumb-pots, in which they were kept until the following spring, when they were again shifted into larger-sized pots. In autumn they were planted out in the Alpine ground—which is warm and sheltered—in a prepared bed of sandy peat, leaf-mould, the siftings from the potting-sheds, and a little rotten manure. Here they stood all the winter without any protection, except during the occurrence of the most severe frosts, when they were lightly covered with bast mats. Many predicted that our attempt to cultivate the Edelweiss in England would turn out a failure; some being of opinion that without its natural protection of snow it would perish in winter with its alternate frosts and rain. Others again thought that the summer would be too hot for it; but notwithstanding these forebodings, our success was complete. The plants grew most vigorously and flowered abundantly, some of the stems being from

9 in. to 12 in. in height and carrying fine branching heads of bloom 5 in. or 6 in. across. They stood the burning heat of last summer without any protection, excepting during a few of the hottest days, when they were shaded with thin canvas thrown loosely over a temporary wooden framework. The flowers that were not gathered were allowed to produce seed, which was collected and has just been sown in the manner already described. We are, therefore, in hopes that our plants of the Edelweiss will be as fine next summer as they were last. We were afraid that the heavy rains this winter might have destroyed the old plants, but on examination we found them still alive, and within these few days they have commenced to grow a little. It is needless to say that last summer they were the admiration of all who saw them, and it was a source of much pleasure to Lady Dorothy Nevill—who was in London at the time—to receive among other flowers a weekly bouquet from her Edelweiss bed at Dangstein. L. T. VAIR.

Cedars of Lebanon and Architecture.—I am glad to benefit by the writings in *THE GARDEN* of so good a forester as Mr. George Berry, but I desire to protest against the idea that the tree or any other tree may be planted in association with one kind of architecture and not with another. Such laws are merely, I think, baseless fancies, which through long repetition pass current without examination.—V.



A Villa near Wandsworth Common.

THE INDOOR GARDEN.

POT-CULTURE OF THE CAMELLIA.

Few plants have increased so much in value during late years as specimen Camellias. Good plants—that is, bushes of tolerable size—are procurable only at high prices, and specimens of the old double white are at a premium, £10, £20, and £30 being common prices for them. One reason, and the principal one, of their increased value is the ever-increasing demand for cut flowers, not in London only, but in every town throughout the provinces. A collection of good Camellia plants is a first-class investment at the present time, either to the nurseryman or private grower. They are not dead stock, like many other plants which realize a profit only when they come to be sold, but yield a handsome return annually, and increase in value at the same time and at a rapid rate, a good, healthy, and fast-growing plant sometimes more than doubling its value in a couple of years. It does not require a very old or large plant, if the branches be annually tied out, so as to form a well-furnished bush down to the pot, to produce 1000 flowers annually, and if sold between November and February, they will fetch a sum about equal to the value of the plant. In several manufacturing towns with which we are acquainted, from 4d. to 8d. were the lowest wholesale prices we ever received for flowers of the Old Double White and Lady Hume's Blush, and we could have sold quantities at those prices, and Reds for a little less. For the above reasons the Camellia is now cultivated in pots perhaps more than ever it was before, though it is a more difficult subject to manage when so grown than when planted out. Success is, however, only a question of care and a little intelligence in potting, watering, shading, and temperature, and to these we shall now refer, and as shortly as possible.

Soil and Potting.

Many and elaborate have been the recipes on the subject of soils and composts, which has given rise to the idea that the Camellia is very particular in that respect; but this is not so, and the fact that it grows luxuriantly in ordinary good tolerably light garden soil, wherever the climate suits it out-of-doors, proves this conclusively. We have seen plants which left nothing to be desired in the way of health growing in a common loam in the foreground of a shrubbery, where they had been for many years; and such instances are quite common. When cultivated under glass, of course, and with an object, it is desirable to give the Camellia as good compost as possible, and this may consist of two-thirds of rotten, light, turfy loam, one-third of peat and leaf-mould together, and a liberal addition of river or silver sand, if the loam and peat be not themselves of a sandy description. Some use peat alone, but the plants do not thrive long in it; and there is not the least reason for supposing that it is ever found in peat in its native habitat, where it grows under the shade of trees, like the undergrowth of our own woods. The best time to pot the Camellias is just when the plants have done flowering, or when they have completed their growth, but before the flower-buds have matured, otherwise they will probably drop unexpanded. We have potted small and large plants frequently just when the young shoots had made their length, and when the buds were in the rudimentary stage, and never had any mishap with them. The pots should be very carefully drained with clean potsherds, putting the largest pieces at the bottom and the smaller ones on the top. Large pots or tubs should have 3 in. or 4 in. of drainage, and the smallest-sized pots should not have less than 1 in. The Camellia in a healthy state is a vigorous rooter, and may have a good shift when it is repotted; for it is not desirable to shift the plants often, especially after they get large, good top-dressings being sufficient afterwards. Small plants may have 1 in. more room, and large ones may be allowed from 3 in. to 6 in. all round, accordingly as they are weak or vigorous; and it is sometimes better, in the case of unhealthy plants with few roots, to reduce the ball of soil, and put them into less pots than before; but growing plants must have more or less additional room. Before potting it must be ascertained whether the ball of soil is dry or not in the winter—a thing likely to occur; and, if so,

it should be steeped in water until there is no doubt about it being soaked through. In potting, the soil should be pressed moderately firm round the roots; but beating it hard with rammers is unnecessary. Plenty of room should be left for water, 3 in. or 4 in. in large pots, and proportionately less in small ones, but enough always to hold a sufficient quantity to soak the roots at one watering. After all the plants are potted they should be set, whether by themselves or among other plants, so closely together that the pots will be completely shaded and cool; or, what is better, they should be plunged in ashes or soil. If neither of these arrangements can be carried out, then some means should be taken to shade the pots, and prevent alternations of heat and cold and drought, which the Camellia is not able to endure.

Watering and Shading.

The dropping of the buds of the Camellia is frequently due to neglect or excess in watering, and general ill-health may often be traced to the same cause. The soil in the pots should never be allowed to become dry, in the real sense of the word, and neither should it get sodden or sour. It is difficult to convey to the unpractised hand what is meant by a "healthy" or "sweet" soil; but we should like to do so, and we can liken such a soil to nothing better than newly turned-up soil out-of-doors after it has been well drenched with a thunder shower, supposing the ground to have been parched previously. The danger most to be feared, however, is dryness at the root unless much spongy peat has been used, and then there may be danger from over-watering, but, as a rule, ample watering should be supplied, if the drainage be safe and sufficient, for in an ordinary soil all superfluous moisture soon drains off. Out-of-doors in this country the Camellia does not appear to suffer seriously from continued bright sunshine, but under a clear glass roof it does suffer without doubt, both in the old and young leaves. Ground glass has been tried in the roofs of Camellia houses, but the shade afforded by such means is scarcely dense enough, as we happen to know from experience, and we would prefer either a cotton shading or a coating of whitewash; but the cotton shading, which should be thin, is the best, as it can be removed in dull days and in the evenings, for it is only bright sunshine that the Camellia dislikes: it enjoys abundance of subdued light. The plants should therefore be shaded from the direct rays of the sun as soon as they gather strength in the morning, and the shading should not be removed till late in the afternoon.

Temperature.

When the plants are wanted to flower from November onwards through the winter, they should be started about March in a genial temperature of 55° min. to 60° or 65° max., with regular ventilation, avoiding draughts; and these temperatures may be continued till summer advances, and then they can be kept up without fire-heat. So treated the plants will grow and mature their buds by October, and they will open without forcing, which the Camellia does not like; or the plants may be pushed on in a Vinery, which is started about April, and with the higher temperature of this they will be brought forward earlier than otherwise. At one time we grew a number of large plants in a late Vinery, where they remained all the year round. The summer temperature of the Vinery, which ranged from 65° to 80°, seemed to suit them, and they always used to begin flowering in October of their own accord, and continued to do so most of the winter, the house being kept at a temperature of 45° or 50°, and dry for the sake of the Grapes. In other respects the Camellia will do well in a cool greenhouse or conservatory, but here it does not begin to flower till February or March.—"Field."

Cyclamens and Sun-heat.—In Mr. Cornhill's article on Cyclamens (see p. 83), the following sentence occurs:—"The exposure of the Cyclamen in any period of its existence to strong solar heat and an arid atmosphere appears to me to be subjecting it to a treatment quite foreign to its nature." Now, not far from Athens I have seen a large tract of wild ground covered with flowering Cyclamens in the latter part of October; the air was filled with the fragrance of this exquisite flower, and the bright, yet delicate, colouring is strong in my recollection after the lapse of some fifteen years. In Greece the sun is hot, and the air arid.—CHRISTINE.

THE KITCHEN GARDEN.

NOTES ON THE BEST NEW VEGETABLES.

SINCE December 14, when the first seed catalogue for 1877 arrived, I have received no fewer than sixteen, every one of which is excellent in its way, but to the inexperienced, who wish to make a limited selection of the best seeds only, considering the numerous novelties described, large catalogues must be perplexing in the extreme. To such a few notes concerning the best kinds of vegetables may perhaps serve as a guide, as they are written from practical experience of all here named, except the Radish and Dwarf White Celery.

POTATOES.—Fenn's Early Market, at once the earliest, handsomest, and finest-flavoured round Potato yet in commerce, is sure to become a favourite with Potato-growers. There is in certain quarters a tendency to underrate Mr. Fenn's seedling



Early White Stuttgart Giant Radish.

Potatoes, on the ground of want of size and productive properties, and with some few of his first seedlings perhaps justly; but of late Mr. Fenn has made wonderful advance in the way of size, and though Early Market is not a large Potato, its productive qualities are immense, and it has the additional recommendation of having a haulm rarely exceeding 1 ft. in height. Early White Kidney is another of Mr. Fenn's seedlings, and an excellent companion to the foregoing; it is much earlier than Lapstone, and possesses all the good qualities of that deservedly popular variety. Amongst recent American introductions of the Potato none can compete with Snowflake. It is both handsome, prolific, and of good quality, being more akin to the English kinds in flavour than any previously introduced—for without exception all the American kinds are wanting in this one essential element, viz., flavour.

RADISHES.—The Early White Stuttgart Giant Radish is highly recommended by Messrs. Vilmorin, of Paris. It is remarkable for size and rapidity of growth—even in a few weeks it attains the size of the Round Winter Purple Radish; it is somewhat later than the Summer Yellow kind, but the root is much larger.

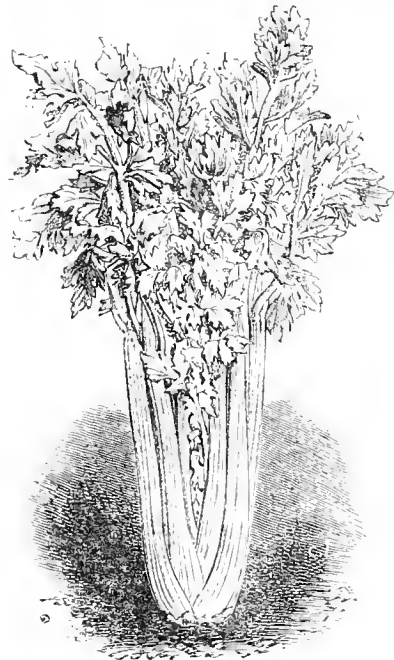
PEAS.—There are many claimants for "the finest in cultivation" position, and in Dr. McLean (Turner) we have decidedly one of the finest; it is of sturdy growth, attaining a height of from 3½ ft. to 4 ft., and the pods of Peas literally cover the haulm: it is of excellent flavour, but in this latter respect Sutton's Duchess of Edinburgh bears the palm, for it is certainly of as fine a flavour as can well be conceived; it seems closely allied to British Queen, and, like that variety, continues

in bearing a long time. Of first early kinds, Laxton's The Shah and Laxton's William the First, being wrinkled Marrows of the finest quality and within a few days as early as Ringleader or Daniel O'Rourke, must eventually oust those varieties, and not on the ground of earliness and quality alone, but also by reason of their greater productiveness. As a good standard midseason and late kind, none yet equals in all points Veitch's Perfection.

FRENCH BEANS.—Canadian Wonder is a decided acquisition to the extensive list of this desirable vegetable, having pods of large size, with no falling off as to numbers on a stalk; it is a grand variety to sow for a main crop.

BROCCOLI.—Among these there are two or three kinds of recent introduction that are worth noting: the first is Veitch's Self Protecting Autumn. I grew a quantity of it last season, and began to cut the first week in December, and have only just finished; it will take the place of the favourite, Snow's Broccoli, as it turns in earlier, and is not so quickly over. As a late Broccoli Sutton's Late Queen deserves a prominent position; this kind and Lander's Goshen Late Protecting are indispensable if Broccoli be in request till the early Cauliflower is ready at the end of April and the beginning of May. Another kind which is not so generally grown as its excellence would warrant, is Sutton's White Sprouting, which produces abundance of small rosette-like heads all through February and the early part of March; it is hardier than the ordinary kinds of Broccoli, and serves well as a substitute for that in the event of scarcity.

CELERY, too, has obtained a place on the novelty list, and the best I have tried is Major Clarke's Solid Red, a sturdy-growing



New Dwarf White Celery.

kind and of fine flavour. Messrs. Vilmorin likewise speak well of a Dwarf White Celery, of which the annexed is a representation, but I have not as yet tried it. This Celery differs materially from the kinds usually cultivated; the size of its stalks makes it resemble the Early Dwarf White, but it is more erect, a quicker grower, and the stalks are wider and closer, which makes them blanch more readily with but little artificial aid. One of the great advantages of this variety is that it does not form any suckers, and thus all the strength of the plant is thrown into the heart. On account of the latter peculiarity, and its very early and erect growth, this Dwarf White Celery can be planted much closer than other kinds.

ONIONS.—The New Queen Onion is also worthy of notice, especially by those who experience a difficulty in securing picklers on account of the bulbs getting too large, as being

but small when fully grown, no difficulty is experienced on that score; another recommendation is its quick growth, for if sown in the month of February it may be harvested early in June.

I have thus summed up in as few words as possible my impressions of a few of the novelties contained in the vegetable seed lists that are really acquisitions to an already ample variety, but the cry is "Still they come;" and every year the so-called novelties get more numerous and the catalogues grander and larger. Would it not be discretionary on the part of seedsmen to make a halt? W. W. H.

POTATOES FOR EXHIBITION.

WHILST every successive season shows small but valuable additions to the list of exhibition Potatoes, it is certain that some old kinds hold their own against the new comers, both in the matter of shape and excellence for the table. Certain people who condemn Potato shows, maintain that the beautifully-formed tubers seen at the Alexandra Palace and elsewhere are inferior for eating purposes to coarser-looking kinds. This is, however, a mistake, based upon a very imperfect knowledge of the qualities of what are popularly known as "Show" varieties. Take the singularly smooth, handsome Lapstone, for example, one of the most popular kinds for the table, of superb quality, and yet inevitably found in the front rank of White Kidneys on the exhibition table. There are also the beautiful-coloured Kidneys, Bountiful and Late Rose; coloured Rounds, Scotch Blue and Blanchard; and white Rounds, Onwards and Schoolmaster, all well known for their specially good qualities when cooked, and fair examples of the quality of Show Potatoes; and yet when these are seen in all their beauty on the exhibition table, excelling larger and coarser, deep-eyed kinds, some people will exclaim, "Ah, they are very beautiful to look at, but not fit to eat!" But apart from all considerations of table quality, there are many persons who are cultivators of the Potato for precisely the same reasons that other persons grow flowers, not for their own consumption or for profit, but because they love to cultivate them, to watch their growth, to note their respective produce, and to exhibit with pride the beautiful tubers they have raised. It is rather to this class of connoisseur cultivators that I invite attention to exhibition tubers, because there are many who are only too pleased to obtain useful information respecting new kinds of Potatoes that may be worth a trial during the ensuing season. Of White Kidneys the finest of new kinds are International Kidney, Covent Garden Perfection, Success (a large American kind of the Snowflake type), and Edgecote Seedling (a very fine strain of the old Lapstone). White Rounds—Porter's Excelsior, although generally assumed to be but the old Handsworth, is still the handsomest of White Rounds, but it is closely pressed, and probably may soon be beaten by White Emperor and Schoolmaster, the first not yet in commerce, and the latter only sent out as late as last year; in reality, no new White Round exhibition kinds are being offered this season. Coloured Kidneys find two valuable additions in Superior, a new Red American kind, and Garibaldi, a very fine Red Kidney, resembling a large Bountiful; Keystone is another recent introduction from America, a large flat pale rose-coloured Kidney, and is well worthy attention; Ruby, a very pretty early Red American Kidney, will probably be seen more largely on the exhibition table this season, last year having been too dry to bring it to its full size. Some Scotch growers exhibited at the Alexandra Palace last September a handsome Purple-red Kidney under the name of Crimson-Walnut-leaf; this is not known in the south either by name or appearance, but appears to be a distinct and acceptable variety. Then of Coloured Rounds, perhaps the handsomest acquisition is Lye's Favourite, a singularly handsome kind, having a white skin with rich rosy-red blotches of colour about the eyes; Lady Webster, somewhat similarly marked, but of paler tints and flattish in shape; and Grampian, a very fine Red Round, evidently intermediate between Red Emperor and Red Regent, are the most striking of new Coloured Rounds. Allow me to add a selection of twenty-four varieties in their respective sections, the best which I know for exhibition:—

WHITE KIDNEYS—Snowflake, International, Lapstone, Waterloo Kidney, King of Potatoes, Covent Garden Perfection.

COLOURED KIDNEYS—Purple Ashleaf, Garibaldi, Late Rose, Salmon Kidney, Ruby, Bountiful.

WHITE ROUNDS—Porter's Excelsior, Schoolmaster, Rector of Woodstock, Model, Onwards, Bresee's Prolific.

COLOURED ROUNDS—Lye's Favourite, Red Emperor, Scotch Blue, Early Oneida, Blanchard, Vermont Beauty. A. D.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Orchids.—Amateurs are frequently deterred from attempting the cultivation of Orchids through the prevalent opinion that they are difficult to grow, and that they require houses especially for themselves, besides being very expensive. No doubt all these objections hold good so far as relates to many species, but there are numbers quite equal to the best varieties in the beautiful character of their flowers and the freedom and profusion in which they are produced that succeed just as well in an ordinary cool stove associated with other plants as they will if grown in separate structures. They also have the merit of being cheap, being little or no higher in price than many hard or soft-wooded stove subjects. The undermentioned are a few that any amateur who has an intermediate-house or cool stove, and who has had some experience with the plants usually grown therein, need not fear failure in the production of good specimens. The first I may mention is *Cattleya Mossie*, with its numerous forms, the principal difference in which consists in the degrees of brilliancy and purity of their colours, but the most inferior forms would be considered magnificent in the absence of the finer varieties; it blooms for several weeks in the spring. *C. amethystina* is another fine species, producing large spikes of numerous amethyst-coloured flowers with darker spots, also a spring-flowerer; *C. Loddigesii*, another very free-blooming kind with violet-coloured flowers, produced freely in summer and autumn. With these may be classed *Lælia purpurata*, one of the grandest Orchids ever introduced; intense purple, with a little orange on the purest white; it is also a spring and summer flowerer. The above plants require much the same treatment: pots one-third filled with clean crocks for drainage; soil, good fibrous peat with a fourth of small crocks mixed therewith. Their growth is made in the summer and autumn, during which time give them a night temperature of 60° or 65°, with 10° or 15° higher in the day according to the weather, slightly shading them from the sun, and keeping the soil somewhat moist but not too wet. In the winter, after they have completed their growth, a night temperature of 50° is ample; at this time the roots must be kept almost quite dry until the flowers begin to push up in the spring. The two most useful and easily-grown *Dendrobiums* are *D. moniliforme* and *D. nobile*, the former flowering early in the winter, and lasting six weeks in beauty, the other succeeding it in the spring and summer, the flowers equally lasting. They commence to make their growth after blooming, when the soil must be kept quite moist, and a little shade be given, with the temperature similar to that of the *Cattleyas*. After their growth is completed in the autumn, they should be kept perfectly dry at the root, till the flowers push in the spring, when a very little water must be given; they will bear in the winter as low a temperature as 45°. The pots must be well drained, and the soil as recommended for the *Cattleyas*. *Cypripedium insigne* is the commonest but most useful of the family, especially for cutting, in which state its flowers will remain fresh for three weeks or a month; it requires 2 in. of drainage in the bottom of the pots, and good yellow loam with a little sand makes the best compost for it. It never should be re-potted or the roots disturbed at all until it absolutely needs more room; it flowers in the autumn, and requires plenty of water during the spring and summer, but very little in the winter. *Zygopetalum Mackayi* and *Z. cinnabarinum* also thrive best in loam; they are free-blooming plants with finely-marked, exquisitely-scented, large flowers; the principal colour is white streaked and spotted with dark bluish-lilac; they should be kept moderately moist in the spring and summer whilst making their growth, and somewhat drier in the winter. These latter plants will succeed during the winter and summer with a similar temperature to the former. For bouquets and vases, the blooms of all the above-mentioned are amongst the most prized.

Stove and Greenhouse Plants.—If *Bougainvillea glabra*, *Allamandas*, and *Clerodendrons* have not yet been started, that operation should be commenced at once, as half their usefulness depends upon giving them a long season. The soil during the winter having been kept quite dry, the balls will need a thorough soaking before starting; there is no better way of effecting this than placing them for a few hours in a bucket of tepid water. *Allamandas* ought to be attended

to in the matter of potting; they like good loam well enriched with rotten manure, and as much sand added to it as will keep it open, the soil being made quite solid. *Clerodendrons* and *Bougainvillea glabra* must not have their roots disturbed much, or the flowering will be greatly interfered with. *Ixoras* ought to be now potted in good peat mixed with a sixth part of sand. *Fuchsias* struck in the autumn, that have filled their pots with roots, must be moved on into others before they become at all pot-bound; they may have a 4-in. shift; let the soil consist of four parts good loam and one part leaf-mould and rotten manure in equal proportions, with a fair amount of sand, but it must not be made too light, as *Fuchsias* thrive best when the material in which they are grown is pretty strong; make the soil quite firm in the pots, and syringe overhead every afternoon; this will keep down red spider as well as encourage growth; by stopping the shoots they will be kept bushy. *Camellias* that through excessive cutting have got into a straggling, scraggy condition, may be headed down, an operation which they bear better than many subjects, and after which, if well treated, they very soon form handsome heads. It is a good plan, should these plants have got into the state above described, to head some down every year till the whole are by this means refurnished. This operation should not be delayed any later than the middle of February. The place where they have been grafted will generally be visible not many inches above the collar; they ought to be cut down to within 2 ft. above the graft, then put them for seven or eight weeks in a cool house, and, if the soil be not too dry, do not give them any water; after this remove them to a genial, growing temperature, and when the eyes break, all those that are more than 8 in. or 9 in. above the grafted part must be rabbed off: there will be quite sufficient left to make a good head. As soon as the growths are 6 in. long, the stumps must be cut down to the point from which the topmost shoot springs; the reason for not cutting so low as this at first is that stronger growth is pushed when a good length of old stem is left till they have broken. If the roots be not in a good state, this heading down must not be attempted.

Kitchen Garden.—It will be well to go over late Potatoes intended for use during the spring and rub off the sprouts, which, if allowed to stay on till they get long, spoil the tubers. Keep them where it is dark and as cool as possible; also see to Carrots, Beet, &c. Whatever may be the material in which these vegetables are stored, it should not be at all wet, as such a state encourages them to throw out shoots. If some roots of Rhubarb be placed in a shed they will soon push and be ready for use before that left outside. A portion of the crowns out-of-doors may have a few inches of litter put over them, by which means they will be protected from spring frosts, and be more forward by a fortnight than if entirely exposed. Of Onions a good crop can only be obtained by early sowing, and as the ground should always be dug at least several weeks before the seed is put in, if not prepared in the previous autumn, it should be dug as soon as it is sufficiently dry to be trodden upon, liberally manuring it, a considerable portion of which should be got down about 12 in. or 15 in. deep. After the land has been dug a sprinkling of fowl manure should be strewn on the surface and remain exposed to the air until a few days before sowing and then pointed in 6 in. deep, with 1 in. of soot and a little salt. This treatment should produce a heavy crop of large bulbs, which are much milder and generally preferred to small-grown examples, that are hot and stronger-flavoured. Radishes sown outside and protected with litter will not be long before they are up if the weather continue mild. As soon as they are aboveground the litter must not be allowed to remain over them in the daytime; it should be taken off carefully in the mornings and put on again in the evenings till they are strong enough to bear full exposure.

Raspberry Beds ought to be gone over with the hoe and all the weeds removed; they should then have a good mulching with manure. To grow Raspberries well they need more manure than other bush fruits; 3 in. put on the surface each year will not be too much.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

February 12.—Potting off variegated *Pelargoniums* struck in boxes; also *Verbenas*, and putting them into heat; and a batch of *Gloxinias*. Shifting *Hollyhocks* and *Centreas* into larger pots, and placing them in orchard-house. Putting in cuttings of *Iresine Lindeni*, *Impatiens Jerdoniae*, *Salvia patens*, *Fuchsias*, *Coleus*, and *Gesneras*, the latter consisting of leaves. Making hills for *Cucumbers*, in order that they may get warm and ready for planting. Dividing *Dactylis glomerata* var. and *Poa trivialis elegans*. Tying down first

Muscat shoots. Staking early Peas. Strawing up ice-house doors and making safe against sudden change in the weather. Fumigating greenhouse for fly and thrips. Examining *Stephanotis* for scale. Applying a mixture of lime and soot to Pear trees and Red Currants, as birds are attacking their buds. Taking up *Artichokes* and *Par-snips*. Giving first Muscat and first *Hamburgh Vines* a top-dressing of cow manure and well watering it in. Manuring Rose border ready for digging. Making up last Potato bed. Stopping bedding *Calceolarias*. Weeding walks.

Feb. 13.—Re-arranging *Odontoglossum*-house. Putting in cuttings of *Salvia* and *Mesembryanthemum cordifolium*. Getting all bulbs out that have been plunged in ashes, and putting them where they can be just protected from frost. Dusting *Apricots* with soot and lime to prevent sparrows from eating their buds. Thinning *Peaches* in earliest house. Raking up worm-casts on Grass. Plants ready for house decoration—*Hyacinths*, *Narcissus*, *Lily of the Valley*, *Primulas*, *Heliotropes*, Scented-leaved *Pelargoniums*, *Deutzias*, *Tulips*, *Imantophyllums*, *Lilacs*, *Sweet Briers*, *Dielytras*, *Azaleas*, *Gardenia* blossom, *Crocuses*, *Snowdrops*, and *Callas*.

Feb. 14.—Preparing a bed under south wall for *Radishes*. Potting off *Chrysanthemum Sensation*, *Veronica variegata*, and *Gazania*. Putting in *Verbena* cuttings. Planting *Seakale* for next season's forcing. Regulating *Creepers* in conservatory. Top-dressing *Lapagerias* with good peat and sand. Starting third *Peach*-house at 55° at night.

Feb. 15.—Digging among *Currant* trees. Sowing *Melons*. Potting *Zonal Pelargoniums* into their flowering pots. Potting *Lilacs*. Shifting some potted-off *Petunnias* into 48-sized pots for early flowering. Putting in cuttings of scented *Verbena*. Planting *Artichokes*. Emptying and re-filling another pit with heating materials for cuttings. *Cucumber* plants sown in October coming into bearing. Raising first *Muscat*-house to 70° at night.

Feb. 16.—Potting *Gladioli* in 60-sized pots, and placing them under greenhouse stage to start. Potting *Lycastes* in peat and Moss. Planting spare cases with *Cauliflower*. Putting in more *Keen's Seedling Strawberries* to force. Shifting young tree *Mignonette*. Tying up climbers on verandah. Pricking manure into *Asparagus*-beds. Earthing up second pit of *Potatoes*. Raising *East Indian Orchid*-house from 65° to 70° at night, from 70° to 75° by day fire-heat; and raising *Dendrobium*-house to 60° at night and 65° by day fire-heat, both being allowed to rise higher with sunshine.

Feb. 17.—Potting off young *Fuchsias*, *Lobelias*, *Chrysanthemums*, and *Tuberoses*, putting the latter in heat. Pricking out earliest *Celery* in a one-light frame; also *Tomatoes*, seven to a pot. Putting in *Mrs. Pollock Pelargonium* cuttings; also *Pink* cuttings in manure-bed, and some *Plumbago*. Shutting up *Maréchal Niel Rose*-house to induce the plants to bloom. Putting *Daturas* into *Peach*-house. Going over *Muscats* in flower daily with a camel's hair brush. Syringing *Cherry* trees with soap-suds to kill any fly which may be lurking in crevices. Thinning a great many fruits off early *Peach* trees. Finishing the pruning of *Gooseberry* trees. Keeping *Phalenopsis* at 70° at night, *Dendrobiums* and *Cattleyas* at 60°, and *Odontoglossums* at 55°, allowing a fall of some 3° or 4° towards morning. Raising second *Vineries* to 60° at night, buds mostly burst and showing fruit.

Orchids.

Some apply warm water to *Orchids*, and recommend that hot-water pipes should be laid through the tanks in *Orchid*-houses. My own experience, gained both by observation and experiment, has convinced me that such a course is wholly unnecessary. Although water heated slightly by artificial means may not be perceptibly injurious to plants upon which it is used, cold rain-water stored in nubeated tanks of good size in the *Orchid*-house, will be found to be more beneficial to the flowers, and its temperature will not differ greatly from that of the house all the year round, whereas the temperature of the water in tanks having hot-water pipes passing through them will be in accordance with the heat of those pipes, and consequently the water may sometimes have to be used cold; and at other times, when the heating apparatus has to be kept going briskly, or when there is but little water in the tanks, its temperature will be increased to a high degree, higher often than even an advocate for the use of warm water for *Orchids* could wish; nevertheless, there being no other at hand, it is used, and the plants suffer accordingly. The worst feature as regards the system of running hot-water pipes through tanks in which water is stored is that the temperature of the water is highest throughout the coldest and driest part of the year, when the greater portion of the plants are at rest; the result, therefore, is that warm water is applied during the resting season and cold at the height of the growing season, while in carrying out the warm-

water system correctly, the very reverse of this would be necessary. The plants most liable to be injured by the treatment referred to are the occupants of the cold *Odontoglossum* and intermediate houses; those of the East India-house seem better able to resist its evil effects; and hence it is that we often see healthy subjects in a house, the tank of which has a hot-water pipe running round it. This is often done, too, with the view of increasing the humidity of the atmosphere, and in this respect it may at times be slightly beneficial; but at the present time, when the East India-house should be drier than usual, it would be injurious. There remains, therefore, only one course to pursue in a house so arranged, and that is, to shut off the heat from the pipe running through the tank in order to prevent the moisture rising from the water. The inconvenience of this will be seen at a glance; those plants which have hitherto received warm water will have to be supplied with cold for a time, or the water being kept warm as usual the atmosphere of the house will be too moist, and many of the plants will not be prepared for flowering. It is better, therefore, to class the East India-house with the other houses, and to have the tanks in it unheated and to trust for humidity to other means. I am convinced that cold rain-water stored in tanks in houses (not taken from outside) is the best for all plants, and I have seen disastrous results accrue to plants from the application of water at a high temperature.—JAMES O'BRIEN.

PLATE LX.

THE CRIMSON SATIN-FLOWER.

(*BRODLEA COCCINEA*).

UNLESS our friend Dr. Bolander can boast of a more phlegmatic temperament than is usually associated with an enthusiastic love of botanical pursuits, it can hardly be doubted that his first glimpse of the *Brodiaea coccinea* gave rise to sensations of a most agreeable character; for among the dwarfier plants of the prodigally endowed region of which it is a native it would be hard to find another offering in its flowers so striking and so unrequited a combination of colour, to discover which one must travel far southward to the Peruvian Andes, where, among the *Amaryllids* peculiar to that range, the same deep crimson colour, effectively contrasted with vivid green, occasionally obtains. The *Brodiaea coccinea* is not only uncommonly showy—a feature which it shares with some other beautiful *Liliaceæ* from the same State—but, unlike some of them—for instance, the *Calochorti*—it is a most manageable bulb, and has shown a disposition to adapt itself to the vicissitudes of our fickle climate, so that the amateur who may be tempted to invest a few shillings in its acquisition need not fear to see his bulb becoming year by year small by degrees and beautifully less, until finally it becomes conspicuous by its absence, and vanishes to the limbo, surely now well tenanted, of lost bulbs. It appears to succeed in soil of almost any description between the extremes of very light and very heavy, but makes the most vigorous growth in substantial but friable, silicious loam; and the accommodating character of this handsome plant is further shown by the fact that the bulbs may be kept out of the soil for at least six months, that is from August to February, without injury. It is not, however, desirable to delay planting beyond October, as the flowers of the late-planted bulbs are scarcely so fine as they otherwise would be; and once planted they may remain undisturbed for several years, unless raised for the purpose of division. Offsets are produced in some quantity, and the plant may also be increased by seed, which vegetates pretty freely after an interval of some weeks, the resulting bulbs attaining a flowering size in from three to four years. As the plant is of slender habit, the flowers being usually produced on a naked scape $1\frac{1}{2}$ ft. high or more, not less than three bulbs should be grouped together, and five or six will produce a still better effect; a single Osier rod placed in their midst will suffice to support the somewhat fragile stems. In some soils, notably those of a light, sandy character, the foliage is sometimes liable to disappear, or at least wither partially, by the time the flowers are in perfection. This may probably be remedied by sowing a few seeds of some neat annual of dwarf habit, which would carpet the soil around the stem, and bloom subsequently to its removal, or in the case of the early-flowering annuals, such as *Limnanthes*

and *Leptosiphon*, simultaneously with the bulb. The general aspect of the plant is well shown in the accompanying figure, though it is, perhaps, matter for regret that the specimens from which the drawing was made were somewhat too far advanced, as indicated by the pale and straightened tips of several of the flowers. From an early stage, and up to the period of expansion, the limb of the flower is of an agreeable green tint, which it loses as the flower fades, until it assumes the appearance shown in the uppermost blooms on the plate. Botanically the genus *Brodiaea* is characterized by having a funnel-shaped or tubular perianth, with a six-lobed limb varying in length, three linear anthers, more or less sessile in the throat of the tube, alternating with which are three flattened, yellowish-white bodies, or abortive stamens, termed staminodes, which may be observed, in the illustration of *B. coccinea*, to project beyond the tube. The ovary is sessile or shortly stalked, having from four to six ovules in each cell, with a straight, slender style and capitate stigma. It matures into a membranous, oblong, three-angled capsule, opening by three valves, each cell containing from two to four small black three-angled seeds. In all, the flowers are produced in an umbel from a many-leaved spathe, or erect or nodding pedicels, which are articulated at the summit. It includes but five species, viz., *B. grandiflora*, with flowers of a deep violet blue, on which the genus was founded by Sir James Smith, and of which there are several forms, differing chiefly in stature and the size of the flowers, all being very desirable and pretty hardy bulbs; *B. congesta*, with smaller flowers, in a crowded head, of a reddish-violet colour, less ornamental than the preceding; *B. multiflora*, a species differing from the last chiefly in the blue colour of its flowers, and in the staminodes being lanceolate and entire instead of quadrate and bifid; *B. volubilis*, a remarkable plant, with a long, twining scape, and a crowded umbel of rather small rosy-purple flowers; and, lastly, the *B. coccinea*, the subject of the foregoing remarks. All of them are natives of Western America, occurring chiefly in California, Oregon, and British Columbia, and have been long known to botanists. *B. coccinea*, even though first introduced to cultivation by Dr. Bolander, was, it seems, first discovered by Mr. W. Lobb, but does not appear to have been sent home in a living state. W. THOMPSON.

Ipswich.

Finely-flowered *Eucharis amazonica*.—About two-and-a-half years ago I furnished some account of three of the best plants of this which I had then seen. The best plant, according to my note-book, had forty-one spikes upon it, and within nine months the same plant had about seventy spikes; on each of these spikes I counted five flowers, making in all 350. The size of the pot in which they were growing was about 16 in. Just now there is a plant here with twenty-four spikes, and a smaller plant just going out of flower on which there were nine spikes. Such plants as this latter, not extra large, but neat and proportionate, are quite as useful, and in some respects more so, than larger plants.—ROBERT MACKELLAR, *Abney Hall, Cheadle.*

Roman Hyacinths the Second Year.—Everybody is well aware that Dutch Hyacinths are not worth the trouble of planting a second year after they have once flowered; but what about white Roman Hyacinths, are they worth retaining? and if so, how should they be treated from this time until next autumn?—*North Devon.* [I must confess that hitherto Roman Hyacinths have not succeeded with me a second year, but this season I am planting them out in very dry, sandy ground immediately they have flowered, and I am in hopes of being more successful. I have planted them before, but if the land be at all wet they all rot and disappear. I imagine it will be necessary to take them up and store them in May or June, and replant them in September. For several years both Dutch *Narcissi* and Hyacinths did not succeed a second year with me, but since I have tried planting them in very dry, sandy soil, the Dutch *Narcissi*, such as *Queen of the Netherlands*, &c., flower every year, and the bulbs increase both in size and number, and altogether do just as well as imported ones. I do not take *Narcissi* up, but allow them to remain in the ground all the year. Dutch Hyacinths I always plant out and lift again in June, and replant in October, and always with great success; the same treatment holds good with regard to Tulips of the early Dutch sort, as well as with several other kinds of bulbous plants.—W. DENNING.]



THE CRIMSON SATIN FLOWER (BRODIAEA COCCINEA - A GRAY.)

LILY BULBS.—I.

It would be difficult to name any family of hardy flowers which has attained so much popularity in our gardens and garden literature in so short a time as that of the Lilies, and one of the reasons for this, apart from the stately beauty and variety of these plants, is doubtless the increased interest now being taken in the more beautiful plants of all temperate climates, although not a little of the attention which Lilies now receive is due to Mr. Baker, who, by his "Review," directed many European collectors to their natural habitats. To Herr Max Leichtlin, of Baden Baden, is due the credit of introducing many species to our gardens, and here Mr. G. F. Wilson, Mr. J. McIntosh, and other private growers have done much in the same direction; while the activity displayed by Mr. Bull, Mr. Barr, the Colchester Bulb Company, and others, has resulted in the more general cultivation of Lilies everywhere. The main bulk of Lily literature, whether pictorial or otherwise, has been devoted to the above-ground growth of the plants to the flower-stem and its burden of green leaves and graceful flowers, and, seeing that this is so, we have decided to devote a little attention to the underground growth or bulb development, but not so much with the idea of directly instructing our readers, as to show that the whole subject of underground plant growth is worthy of their own personal observation, since it is only by obtaining records from many different soils and climates, or systems of culture, that we can hope to add to what is already well known of Lily bulbs by most cultivators. Any such observations or sketches of bulbs (better still, the loan of the bulbs themselves) will be welcome; and as it is self-evident that we must learn to grow plump, perfect bulbs before we can hope to see Lily flowers in all their possible beauty, the importance of looking to what Mr. Barr tells us is "the root of the matter," that is to say, the bulb, will be apparent. All our sketches hereafter to be given were made during November of last year, the bulbs having been selected as type specimens and kindly lent to us by Mr. G. F. Wilson, Mr. Peter Barr, Mr. W. Bull, and the Colchester Bulb Company. After our sketches and notes were taken, the whole were again compared with fresh bulbs in Mr. Barr's collection, so it will be seen precautions have not been spared to insure their approximate correctness, and consequent value to Lily cultivators.

Form, Colour, and Uses of Lily Bulbs.

The form of Lily bulbs, even of the same variety, is liable to vary according to different phases of their growth; thus young bulbs, before flowering, have plump, closely imbricated scales, but when the flower-stem pushes up the scales become thinner and wider apart, owing to part of their substance having been attracted to the flower-stem. Imported bulbs are generally loose and open, especially if they have been kept in a dry atmosphere, just as the scales of Pine cones open under similar conditions. It is, perhaps, impossible to discover why the flat-scaled American Lilies, such as *L. Washingtonianum*, *L. purpureum*, and one or two others, have assumed the sub-rhizomatous or oblique-creeping habit so characteristic of the thick short-scaled bulbs of *L. pardalinum*, *L. canadense*, *L. parvum*, and others. I saw over a thousand of *L. Washingtonianum* bulbs, and considerable quantities of *L. Humboldtii* and *L. Bloomerianum ocellatum* at Mr. Bull's, all showing this oblique sub-rhizomatous habit; and those of *L. Washingtonianum* in particular looked as though they had grown among flat rocks or shale found in some Californian districts, embedded under 8 in. or 10 in. of the soil in upland localities. Whatever the object of this bulb extension may be, however, matters but little, the result of it being that the hungry young roots are enabled to push their way in fresh soil every year. Different conditions of nutriment again, as supplied by more or less suitable soils, affect both the size, shape, and colour of all Lily bulbs, although not so much as to remove the almost indescribable characters by which the practised eye distinguishes them. The colour of Lily bulbs in different soils is very variable, this variation depending in a great measure on the oxidation due to atmospheric exposure, this exposure being regulated by the density of the soil, or its permeability to light and air. That there is some other inherent cause for this colour development, however, is shown, since, in precisely

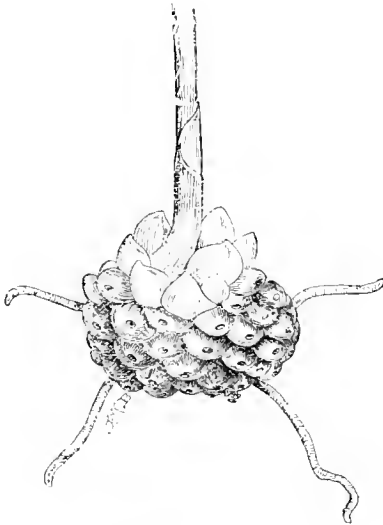
the same soil, bulbs of *L. Browni* turn purple on exposure, while bulbs of the *L. Martagon* and European Turk's-cap Lilies as invariably become yellow under the same treatment. The whole question of local colour predominating in any part of the plant, as shown in some Lilies, is very interesting, and often is an aid to garden nomenclature, when the colours of the flowers alone fail us. Thus, as Mr. Barr informs us, he was long in arriving at any tangible characters by which to distinguish the different varieties of the extremely variable *L. speciosum*, until he observed the local colour of the flower-stems, leaves, and anthers of the flower which simplify the whole matter. The Dutch growers expose most of their bulbs so as to give them a good colour, but, apart from mere appearance, the practice is not a desirable one; indeed, the purchaser has to pay for the colour in the shape of lessened vigour, due to the evaporation consequent on exposure. Of course this drying and colouring process is essential where bulbs have to be stored for months, so as to be ready for transit or sale, but all cultivators are now tolerably well agreed that the sooner Lily bulbs are re-planted after they are moved from the soil the better. Colour alone cannot be taken as a character in determining Lily bulbs, since in *L. speciosum* we find white, yellow, orange and brown, reddish-purple, and even dull crimson bulbs, all yielding precisely the same coloured flowers; or perchance we find that a white bulb produces dark rosy-crimson spotted flowers, while the white-flowered *L. speciosum album* often has bulbs of a deep purplish-crimson colour. The yellowish-white bulbs of some of the orange Lilies, as in the forms of *L. elegans*, become bright purplish-crimson if fully exposed to the sun and air for a few weeks, and the same is observable in imported bulbs of *L. Wallichianum*, the bulbs of which are yellowish-white when removed from the soil. Perhaps the forms of *L. Martagon* are most constant in colour, their bulbs being of a bright yellow colour, as are those of *L. albanicum*, *L. pyrenaicum*, and other European Turk's-cap Lilies. *L. Browni* frequently has an oblate purple bulb dotted with dark markings; some, however, are yellowish-white, and while *L. Washingtonianum* and *L. Humboldtii* generally (and I have seen them in heaps of several hundreds together) have pale greyish or yellowish-white bulbs, *L. Bloomerianum ocellatum* (a variety of *L. Humboldtii*) has purple-dotted bulbs very similar to those of *L. Browni* in colour and dotted in the same manner. The most delicate colour I have seen in any Lily bulb is observable in the fresh young bulb growth of *L. superbum*, where the white scales are suffused with soft rose colour; *L. canadense* and *L. pardalinum* have yellowish scales; while *L. canadense parvum* has scales as white as dogs' teeth, and not unlike them in shape, only much jointed. The curious and sharp-pointed scales of the bulbs of *L. avenaceum* (true) are clear yellow in colour, and being jointed in the middle the jointed part is readily broken in potting or digging up the roots, and then one could readily imagine that the husked fruit of Avena or Oats had become mixed with the soil. The white-flowered Lilies of the *L. longiflorum* type, such as *L. neilgherense*, *L. Wallichianum*, *L. philippinense*, the European *L. candidum*, and the Japanese varieties of *L. longiflorum* itself are somewhat similar in the shape and colour of their freshly dug bulbs, the form being the ordinary ovoid type, with white or pale yellow scales.

As to the uses of Lily bulbs, apart from their flower-yielding properties, but little needs to be recorded. The bulbs of *Lilium ciliosum* and those of *L. tigrinum* are eaten by the Japanese, who boil, roast, and preserve them in various ways. The bulbs of some of the American Lilies are, or have been, also frequently eaten by the Indians.

Structure of Lily Bulbs.

I cannot do better than quote Mr. Baker's summary of bulb structure from his "Revision of the Genera and Species of Tulipææ," p. 219, where the main points of interest are thus set down:—"Firstly, throughout the tribe the bulbs are strictly determinate and monocarpic, the main axis elongating into a flower-bearing stem, and the bulb, the cycle of existence of which is from one to three years, either dying or remaining, but in either case developing a new bulb in the axil of one of its scales. In what is called a perennial squamose bulb the

old scales remain, and a new bulb is developed into a flower-stem in their centre; in the third and fourth types the old scale or scales die, and the new floriferous stem is developed outside them. Secondly, we get in the tribe, side by side with a general uniformity of flower structure, every range of transition, from a typical squamose bulb (Lily) through a typical tunicated bulb (Tulip), to a tunicated corm (Erythronium), the difference between them depending upon the breadth and thickness of the enlarged bases of the leaves, their duration, their uniformity or difference in texture, whether they all, or some only, grow out to produce leaves aboveground, and whether some only, or all, are dilated below the surface into reservoirs of nutriment. Bulblets or bulbilla, quite similar in structure to those produced in the axils of the underground leaves, are regularly present in the axils of some of the leaves of the stem in *Lilium bulbiferum* and *L. tigrinum*, in *Fritillaria macrophylla*, and in the Mexican species of *Calochortus*, and are occasionally developed in some other Lilies if the inflorescence be injured." The nearest allies of the Lilies are the Fritillarias, which present two types of bulb culture—the one set, as in *Fritillaria Meleagris*, having a couple of thick, leaf-bearing scales or thickened petioles enclosed in two or three membranous tunics, "which have never produced leaves or fulfilled nutritive functions. This type of structure," says Mr. Baker (see "Revision of the Genera and Species of Tulipeæ," p. 216), "is scarcely varied throughout half the genus *Fritillaria*, and it is the type that is distinguished as having tunicated bulbs. But in the American *Fritillaria* there are no outside tunics, and the scales are numerous. * * * Upon this difference Dr. Kellogg has proposed to separate the American *Fritillarias*



Bulb of *Fritillaria recurva*.

as a genus under the name of *Liliorhiza*, but there is no difference in flower structure between the Old World and New World species, while the bulb of the New World *F. pudica* is sometimes barely distinguishable from those of the *F. Meleagris* group; and we get the *Liliorhiza* group represented in Asia by *F. kamtschateensis*; and in the Old World *F. imperialis* and *F. persica*, which were classed as Lilies by the pre-Linnean authors, we get a large, perennial, squamose bulb, without any tunic, not materially different in any way from that of *Lilium*, with the scales as thin, but not so regularly formed, and broader at the base; so that it will be seen that *Fritillaria*, which has been little studied from this point of view, presents great variety and much interest in its bulb structure, and runs over the line of transition which separates the squamose (or scaly) from the tunicated (or coated) type."

We may here again quote from Mr. Baker's "Revision of the Genera and Species of Tulipeæ," pp. 215-216, with advantage:—"The squamose perennial bulb is exemplified in all the Old World species of *Lilium*. This consists in its mature form of a large number of thin, flat, lanceolate or oblong-

lanceolate scales tightly pressed against one another, face to back, and spirally arranged around a central axis, which is not produced, either vertically or horizontally. From the under side of the central axis proceeds downwards a dense tuft of fleshy fibres, and from the upper side is produced the flower-stem of the year, its lower part, between the summit of the bulb and the surface of the soil, giving off copious radicular fibres, which assist greatly in procuring the nourishment and strengthening the hold upon the ground of the developed flower-bearing stem. This underground root-bearing portion of the stem above the bulb is often vertical, but in some species, as for instance *Lilium Leichtlini*, will creep for a length of 6 in., so that, if grown in a pot and the bulb planted in its centre, the stem will spring up from the side of the pot. [Mr. Elwes has seen this come up 2 ft. from the bulb, thrusting itself through a gravel walk. It should not be grown in a pot.] All these numerous flattened scales of the bulb possess potentially the power of developing new bulbs in their axils, and will do this, in some species at any rate, under cultivation if a bulb be broken up and properly treated; so that what with bulb-reproduction and what with seed-reproduction, a skilful operator may in three or four years multiply fifty-fold his stock of a desirable species or variety. But in a state of Nature there is only one new flower-bearing stem developed each season from the centre of the bulb and a few from the axils of the decaying outer scales. A new bulb, whether grown from seed or from bulblets developed in the axils of the aboveground leaves of the floriferous stem, or produced in the axil of one of the bulb-scales, takes not less than three years, under the most favourable circumstances, before it develops a flower-bearing stem. The first season we get an ovoid mass, perhaps a quarter of an inch in thickness, composed of half-a-dozen tightly imbricated scales, which sends out three or four slender radicular fibres from its base. At the end of next summer we have a bulb as large as a Hazel nut, with a copious development of strong radicular fibres from its under side, and the half-dozen scales prolonged above the soil into a rosette of oblancoate leaves. Next year, if circumstances be favourable, the flower-bearing stem is developed; and then, if nothing untoward happen, the bulb goes on living for an indefinite period, sending out each year a flower-stem from its centre and shredding off old scales with buds in their axils—more copiously in some kinds, less copiously in others—from the circumference all round. In two of the Californian Lilies (*Washingtonianum* and *Humboldtii*) this type of structure is modified by the central axis of the bulb being prolonged horizontally, so that the scales are thrown out of a regular spiral, and the mature bulb is irregular in shape and more or less flattened laterally. Here, then, we get a squamose bulb taking the first step to pass off in the direction of a true rhizome; but the fleshy scales are quite similar to those of the typical form. The direction of the rhizome is vertically oblique, the new scales being formed at the deepest end. [It may be observed that *L. Washingtonianum* loses its elongated or sub-rhizomatous character of bulb growth when cultivated in our gardens, the bulbs assuming a more regular or typical ovoid habit.] A second modification of this type of structure I cannot do better than describe in the words of Duchartre ("Observations sur le genre *Lis*," p. 25):—"To give an idea of this development, allow me to report what I have seen in *Lilium canadense*, as examined at the commencement of the month of March, and in consequence at a time when only the first indications of the vegetation of the year were observable. At the base of the stem, which had flowered the preceding year, and of which there remained only a small portion hidden in the ground, was found the bulb from which that stem had issued forth, a bulb formed of short scales, still fleshy and fresh for the most part, pointed and laxly imbricated, which, taken as a whole, was about twice as broad as deep. Immediately above this bulb was the remainder of the old stem, bearing a ring of root-fibres now dead and dried up. Finally, the extreme base of this same old stem was prolonged below the bulb with a diameter nearly double that which it had above; and after $\frac{1}{2}$ in. or more it ended by a broad truncation. It is from this old stem which has flowered in the preceding year immediately below the old bulb, and very likely from the axil of a scale

that has fallen, that the horizontal branch is originated, which at its extremity bears the new bulb from which the conical summit of the shoot, which will soon develop into the flower-stem of the year, is already seen to arise. This rhizome does not reach a length of more than 1 in. or $1\frac{1}{2}$ in. From its points of origin it descends a little into the soil, then raises itself to become horizontal, and finally rises at its extremity to form the axis of the new bulb, and to be finally continued as the new flower-stem. In its underground progress it bears small spiral scales, thick and fleshy, of which the first are slightly spaced, but those at the end of this subterranean branch growing closer and larger, and forming thus the new bulb. From the anterior portion of this rhizome, especially from the part that bears the lower part of the young bulb, arise numerous thickish rootlets, on the healthy action of which the vitality of the new vegetation evidently depends. Later on in the year the old bulb disappears, the horizontal rhizome thus becoming free. Then the rhizome dies in the part which does not produce rootlets, and at the same time a new rhizome arises from the base of the bulb of the year, to form in its turn at its extremity another bulb to yield the flower-stem of the year following. There are produced, then, in these Lilies a succession of subterranean bulb-bearing branches, or a series of successive generations, each of which has an annual bulb for its fundamental basis.

"In parting finally from this squamose type of structure I wish to point out that there are three different kinds of 'rhizome' in different species developed in connection with it, all of which are spoken of in books under the general term 'rhizome,' but which are not homologous, viz.:—First, the produced oblique central axis of the Californian Lilies; second, the lower part of the horizontal branch originating from a bud developed in the axis of a leaf-scale, which branch at its extremity bears a new bulb, as in *Lilium canadense*; third, the lowest part of the flower-bearing stem above the bulb when it creeps below the surface of the soil, as in *L. Leichtlini*."

One thing which has puzzled me a good deal in my studies among Lily bulbs has been the not unfrequent occurrence of jointed scales. This is constant enough to become quite characteristic in the case of *L. canadense*, *L. parvum*, *L. philadelphicum*, *L. avenaceum* (not in *L. Hansonii*, often until quite recently mis-called *L. avenaceum*), and one or two others of the American kinds. This peculiarity is, however, not solely confined to the American species, since the broad-jointed scales are found in one form of the extremely puzzling *L. davuricum*, respecting which Mr. Elwes has some curious information in store for us in his great work on Lilies, the appearance of which Lily amateurs and others are so anxiously awaiting. I was much perplexed, after having sketched a bulb of the proliferous entire-scaled form of this species in Mr. Barr's collection (and which he guaranteed true to name, having bloomed it), to find a totally distinct-looking bulb at Mr. Bull's with jointed scales, and of the identity of which its owner was equally confident as Mr. Barr had been. When Mr. Elwes called to see my original sketches of Lily bulbs, however, he relieved my anxiety by informing me that the proliferous form has long been grown in Dutch gardens for exportation to this country, and that formerly it was sent here as a substitute and under the name of *L. Catesbaei*. The other form with jointed scales appears to be the native condition of the plant, and blooms more freely than the proliferous form, otherwise flowers, foliage, and habit, excepting bulbs, are precisely similar. It is possible that a long course of culture by the Dutch florists may have induced this free production of offsets or bulblets at the partial expense of flowers, which are rarely produced, but on this point more information is desirable. The form of the scales of Lily bulbs varies from the ovate or bluntly lance-shaped scales of *L. candidum*, *L. auratum*, *L. speciosum*, and *L. longiflorum*, all representatives of what may be called the typical or ordinary ovoid Lily bulb, so often figured in botanical books through a series of bulbs, having more or less fiddle-shaped or constricted scales, as is the case in *L. Leichtlini*, *L. croceum* and its variety *L. croceum aurantiacum*, *L. concolor* and its varieties, *L. callosum*, *L. tenuifolium*, and also in *L. Brownii*. The bulbs, having broad panderiform scales, slide into the thick, narrow-scaled bulbs of the American Lilies, with distinctly jointed scales, through the jointed form

of the European *L. davuricum*, to which we have already directed attention. The bulbs of most of the American Lilies of the *L. superbum* type, are but one-jointed, and this led me to think that, instead of the leaf having been shed from the thickened petiole, as is so evident in *L. Catesbaei*, leaving a scar; the diminished leaf itself had become bulboid in like manner with the petiole. This view, however, does not seem to hold good, since in *L. davuricum* it is nothing uncommon to find some scales with two joints, and in the little American *L. parvum* three or even four joints are not uncommon. I am particular in pointing out this jointing, because I can find so little written on this point, which is one of much interest to the teretologist and structural botanist. The first reference I can find respecting the articulated scales of Lily bulbs is in the "Proceedings of the Academy of Natural Sciences of Philadelphia," for 1876, p. 412, where it is recorded that "Mr. Thomas Meehan remarked that some bulbs of *Lilium pardalinum*, received last spring from Dr. W. P. Gibbons, had the scales articulated in the middle. The upper portion of the jointed scale fell off easily at the slightest touch, giving the blunt ends of the remaining portion the appearance of grains of Indian corn as they were arranged along the rhizome. Dr. H. N. Bolander has since informed him that it was a common characteristic of this species. It does not, however, appear to have been noticed by monographers of this genus. He had since found that the eastern *L. superbum* had the same character; it was, however, by no means regular. Some bulbs would have a large number of articulated scales, while others had but a few here and there; and they were as likely to be found among the inner as the outer scales. The scales of Lily bulbs were but the dilated and thickened bases of ordinary leaves. There were no articulations in the normal leaves, and it was difficult to trace any morphological relationship in these scale joints."

Growth of Lily Bulbs.

The growth of Lily bulbs is a matter of great importance to the cultivator, and it is now fairly settled that outdoor culture—the bulbs being planted in the open border—is best for the majority of Lilies, the only exceptions being perhaps *L. philippinense* and its late-flowering Indian ally, *L. Wallichianum*. A deep, rich, sandy loam, on a gravelly bottom seems to suit all the strong-growing European Lilies, and also the more robust of the Japanese kinds. *L. auratum*, *L. speciosum*, *L. testaceum*, and even the creamy-tinted, wax-like *L. neilgherrense* grow well, perhaps best, in the cool, deep, peaty soil of Rhododendron beds in positions sheltered from rough winds, and where they receive copious supplies of water during hot summer weather. Mr. McIntosh adopted this last system of culture some years ago, and every one who has stood beneath his 11-ft. high clumps of *L. auratum* will agree with me that for *L. auratum* no other system of culture is nearly so good. A third group of Lilies, such as *L. canadense*, *L. pardalinum*, *L. superbum*, and their varieties, may be designated "bog Lilies," since they like a rather wet, peaty compost, or perhaps I should say the comparatively dry banks of a stream, where their roots can descend to the moisture when in full growth. *L. neilgherrense*, *L. Wallichianum*, *L. philippinense*, and one or two others, although doubtless quite hardy in sheltered positions on warm, dry soils, can scarcely be looked upon as likely to make a perennial growth in the open air generally, and had perhaps best be treated as pot Lilies, or better still, they may be planted out in the light, rich border of a conservatory from which frost is excluded. The growth and functions of Lily roots are so well described in Dr. Wallace's "Notes on Lilies," that we cannot do better than quote the following on the subject:—"If a healthy Lily be examined two sets of roots will be seen, one set proceeding from the base of the flower-stem, and the other set from the base of the bulb. These roots in a healthy-growing plant are very abundant, and may be described as forming a wig. Now if the stem be detached from the bulb and planted with its roots undisturbed it will flourish and flower vigorously, and may perhaps, if there be time before autumn sets in, form small bulbs at the base of the stem to perpetuate itself, otherwise it dies, but not until the season is over. If this operation of transplanting be carefully performed it is impossible to detect any check to the foliage

and flowers. Again, Lilies may have their stems damaged, eaten off, or destroyed in various ways, or for some cause or other may remain dormant for a whole season, but it does not follow that the bulb itself is injured, since the roots at the base of the bulb are put forth as usual, and the bulbs grow as well, or even better than they would if the stem were normally produced, since there is no stem to rob them of nourishment. We have known an instance where, although no growth was produced aboveground, the bulbs which had been supposed to have perished were in the autumn found to be much larger than when planted in the previous spring." As a rule, of course all additions to the weight of bulbs are due to the action of the foliage, but, as we shall see presently in the case of *L. neilgherrense*, a bulb may grow and form young bulbs out of its own substance long before the end of the stolon or underground stem has appeared above the ground, and when the old scales of Lily bulbs are used for propagating purposes, this growth, or rather change of form and substance, takes place to a considerable extent before any foliage makes its appearance, the inherent growth power of these bulb-scales being closely analogous to that of seeds. It will be seen that the growth of a flowering bulb of a Lily is more complicated than that of a non-flowering bulb, since in the latter all the root-power of the plant is expended in taking up nourishment for the enlargement and fattening, or plumping out of the bulb; but in the case of a flowering bulb, there is a struggle continually going on between the flower-buds, flowers, and seed-pods, and the bulbs, as to which shall obtain most of the nutriment collected and elaborated by the roots and leaves. Thus, as Dr. Wallace informs us on p. 6 of his "Notes on Lilies," "it is possible for the bulb to be itself absorbed by the act of flowering," and this is nearly always the case when flowering bulbs are planted in small pots of poor compost, or in any medium which cripples root-action. Lily bulbs should never be dried off like Hyacinths and Tulips; their scales should never be allowed to become dry, since any part of their weight or substance lost by evaporation weakens the bulbs in inverse proportion. If Lily bulbs be planted in deep, moist, well-enriched, porous soils, their bulbs increase in number and bulk, and this will be found to be especially the case in those of the *L. bulbiferum* and *L. Thunbergianum* types. Apart from increase of bulk by division, however, Dr. Wallace informs us that "a yearly increment of growth occurs in the smaller bulbs in the centre; the outer and old scales are pushed farther apart by the new growth, and the bulb increases in size more or less according to the nature and health of the bulb. In choosing bulbs, therefore, in addition to preferring a hard, weighty bulb, choose also one that has a light coloured plump interior or "heart," showing good recent growth for next season's flowering. We were particularly led to these observations by noting some bulbs of *L. Browni* which had grown well last year but did not flower; the bulbs were half as large again as when planted, the interior was filled up with light-coloured new scales, outside of which were a few discoloured scales evidently of former growth." Therefore, when we hear it said that a Lily bulb takes a year to recover itself after importation or transplantation—[which, however, but rarely occurs in the case of *L. auratum* and *L. speciosum*, although *L. pardalinum* and *L. Humboldti* frequently fail to bloom the first season after importation]—this really means one of two things—namely, either during that time an offset has been developed (from the bulb planted) to the flowering stage, or an increase of heart-growth has taken place in the interior or "heart" of the bulb planted, from which the flowering stem rises the second year after planting; and one or other of these processes is what generally takes place when bulbs have suffered in transplantation; but imported bulbs, if of good size, generally bloom the first year, unless they are kept out of the ground too long and become shrivelled—a sure indication that much of their substance has been lost by evaporation, and so weakening is drought on Lily bulbs that a plump, fleshy bulb the size of a Walnut will produce a much stronger flower-stem than a large bulb, the scales of which have become shrivelled and flabby. Mr. Barr tells me that one season the late frosts destroyed the young growth of some of the bulbs of *L. testaceum*, and they were thought to be dead. The bed where they were planted was used as a

barrow path, and in the ensuing autumn, when the path was dug up, the bulbs were found quite fresh and plump, being, in point of fact, much finer than others which had not had their growth injured. This leads us to the question whether we might not with advantage grow two sets of all our fine Lilies, allowing each set to flower alternately. At any rate, all the evidence we have on this phase of Lily growth goes to prove that we might advantageously strengthen our imported Lily bulbs by topping the flower-stems so as to prevent the production of flowers even if we did not, spring-frost-like, destroy the growth altogether for a season. In the autumn of 1876 some bulbs of *Lilium davuricum* in Ware's nursery at Tottenham produced secondary stems bearing flowers and buds (blanched and misshapen, of course) underground, concerning which Mr. Perry gives me the following particulars:—"I have succeeded in finding a specimen of the Lily this morning; a few weeks ago I could have found a more perfect



Anomalous growth in *Lilium davuricum*.

one, having the flowers and leaves more fully developed. Last autumn I removed my two-year-old beds of *Lilium davuricum* in variety, and in the majority of cases I found specimens similar to the one sent; some, through the ground being hard and dry, could not attain a perpendicular position, but grew round the bulbs, grasping them so tightly that you could not move them without breaking. The beds in question had been planted two years, and were fine bulbs to begin with, and they all flowered the first season and then divided, forming one and two bulbs. The second season they flowered well, and some of the commoner sorts were selected to supply cut flowers. It is to this fact that I attribute this peculiar freak: I observed that after cutting off the entire head of flowers with some 6 in. of stem, that the remaining portion of the stem soon died, just in proportion to the length of the stem cut. If the head of flowers and an inch or so of the stem only were cut, the remainder lasted much longer, and in some cases died off naturally, *i.e.*, at the same time as those which had not been cut; I find if the flowers are nipped off individually, one may get very

fine bulbs, but I believe in all cases where the flowers are ruthlessly cut, we get emaciated bulbs, or, as in this case, start the maiden bulbs into growth prematurely. This second growth may have been accelerated by the hot weather followed by showers just about the time the bulbs were dying down. In all cases that came under my observation the second growth was made by maiden bulbs which were attached to bulbs which had flowered. I dare say I found 200 or 300 bulbs similar to the one sent; in nearly all cases I broke the stem clean out; I find they are forming a new shoot from the base of the old one, but I do not expect they will flower." In connection with our present subject, the following observations on the bulb-growth of Lilies by Dr. Wallace will be read with additional interest, coming, as they do, from one who has such excellent means and powers of making judicious comparisons:—"In purchasing Lilies I should like to give my orders very early in the season, and I should request that none of the roots be cut off the bulbs, but that they should be sent to me freshly taken up and packed in some moist material. Indeed, some of the Dutch growers recognize this, for though they expose their roots intended for sale to the action of the sun and air to dry the bulbs and give them a colour (according to the custom of the trade), yet they require that the bulbs they purchase shall be supplied to them quite fresh and with the roots uncut. Of course with imported bulbs this cannot be; but it is manifest that a bulb planted (say in October), rooting and drawing its supplies of nourishment, must be in a far better condition to support active growth in early spring and develop a fine head of flowers than one planted in January or February, kept dry all the winter, having hardly time given to it to emit a few roots before the stem shoots up and development progresses at a rapid rate. All Lilies ought to be in their places, where they are to remain, by the end of October. A third point I wish also to mention, which I have not solved to my satisfaction, and on which I shall be glad of further information from other cultivators. Do Lily bulbs make fresh growth every year, the old growth decaying more or less, as does the Crocus? I submit this question for future decision, merely advancing a few observations bearing upon it. (1) When the stem shoots up from the centre of a bulb it opens up and widely separates the old scales and much enlarges the size of the bulb. I have been surprised to find bulbs, under such circumstances, of the size of a medium Orange when in flower, though when planted they were only as large as a five-shilling piece. (2) Fresh growth, recognized by its white, fresh, firm appearance (light not yet having coloured it), takes place inside the bulb, pushing out the old discoloured scales. In such kinds as *longiflorum*, *speciosum*, *auratum*, and *Martagon*, where the colour of the scales is well marked, I have seen many bulbs, freshly dug up, entirely composed of new growth, a few only of the old scales remaining. (3) When Lilies degenerate, as they often do in pot culture, they get smaller and smaller every year; the tints of their flowers also degenerate. Now in this case is it not because the new growth, under unfavourable circumstances, becomes smaller and smaller each year, till at length it ceases altogether, and the bulb dies? The same thing also happens to many bulbs grown out-of-doors in unfavourable conditions; they get weaker and weaker every year till they die, unless removed to a more suitable spot. I should much like to watch some Lily bulbs grown in a glass pot planted against the side, so that all the processes of growth might be watched. (4) Amongst the North American forms with rhizomatous bulbs, such as *superbum*, *puberulum*, &c., fresh growths are emitted every year in the form of buds or stolons; from these the flower-stem shoots upwards in the following year, so that each year there is a succession of new growth. From these considerations it follows that well-chosen bulbs planted early must be in the most favourable condition to flower freely and make good growth the succeeding year, producing a fine display of highly-coloured blooms. Hence the following rules:—(1) Plant deeply—say 6 in. to 8 in.—so that the roots may easily get into a moist sub-soil, and be sheltered from the scorching, drying influence of the sun's rays. (2) Plant early in the autumn, so that the roots may be at work all the winter. (3) Choose fresh, undried bulbs, with if possible new white central growth, whose roots have not

been cut off or dried. (4) Plant in a cool, shady border not exhausted by roots of trees, where the roots may always obtain moisture and yet not be saturated, where the surface of the ground is shaded from the sun's rays, and yet where the buds and leaves may enjoy sunshine to perfect the flowers, such, for instance, as a sloping bank, with water percolating its sub-soil, with a south-eastern or south-western aspect in our southern counties, and with a more southern aspect as we go further north. Carpet the soil with low-growing foliage or flowering plants, such as *Rhododendrons*, and, in the absence of anything better, use *Mignonette* or *Chickweed* rather than allow full exposure to the sun's scorching influence. 5. During the growing season—*i. e.*, from the time that the stem pushes aboveground up to the time when the flowers begin to open, let an abundant supply of moisture be provided. In India they have their rainy season, during which *L. Wallichianum* shoots up aloft; in Japan they have abundant rains during May and June from six to eight weeks; this, coinciding with my own experience, makes me confident that, drainage being provided, we can hardly give too much water at that season. (6) Where Lilies are grown in pots it will be found advantageous to protect the upper roots by placing masses of fibrous peat and loam on the surface of the pot. (7) If pots be used—and they can hardly be avoided for some kinds (and that Lilies can be well grown in pots the practice of Mr. Wilson amply proves)—then large pots must be used to provide abundant room for root-action—pots with straight sides and broad bases are, for the same reason, better than those with narrow bases; and abundant moisture must be provided daily during the period of growth. (8) The Japanese plant sideways, to prevent the wet lodging between the scales and rotting the bulbs."

The advice given by Dr. Wallace as to the use of large pots requires some qualification. For example, if a small bulb be placed in the mass of soil contained in a large pot, the chances are that much of the soil will become sour before its rootlets reach the sides or bottom of the pot, and then the decay of the root-fibres is the result. Mr. G. F. Wilson suggests that after having well drained the pot, it should be filled with peat and fibrous loam in layers, since the Lily roots feed on the loam greedily, which in its turn is kept sweet and fresh by the antiseptic property of the intervening layers of peat. Mr. Barr uses half-bushel pots, about one-third of their depth being filled with an inverted pot and abundance of crocks, and eight or ten good bulbs of *L. Humboldtii*, *L. neilgherrense*, or other Lilies are then planted in a fresh, porous compost of fibrous loam, leaf-mould, peat, and sand, the result being that the body of soil, although large, is soon filled by healthy roots, and is prevented from becoming soddened by the ample drainage provided. The cool bottom, so essential to the well-being of all Lilies, is provided by placing the pots on moist soil mulched with *Cocoa-nut* fibre or spent tau. A more copious supply of water is requisite in the case of pots drained as above described, but it is far more easy to give plants water or liquid manure than to remedy any injurious influence exerted by stagnant or soddened compost. It may be safely said that no Lily bulb blooms twice from the same centre; and although most of the Japan Lilies seem to produce flower-stems from the same bulb (on closer examination we find that the flower-stalks spring from new buds formed within the old bulb every season), they are, in fact, new bulbs formed within the parent one, but remain attached to the same base, drawing in part sustenance from the surrounding scales, which are only undeveloped leaves. The common American Lilies, such as *L. superbum*, *L. canadense*, and *L. philadelphicum*, found growing in low meadows are perpetuated in quite a different manner. The bulbs are produced on large subterranean stems growing a few inches below the soil. This stem lengthens and produces one or more new bulbs every year, those formed the previous year blooming but once, then commencing to decay, their substance being attracted by the younger growth. In digging up one of these Lilies we sometimes find a string of bulbs of various ages all attached to the creeping stem, but only the last-formed or youngest will bloom after transplanting. Other species of bulbs and tubers increase in a different manner, each having peculiarities or individual characters of its own, although all obedient to a general and similar law. If we, therefore, only study that portion of the vegetable king-

dom which is seen aboveground, one-half is overlooked, for it is not unfrequently the case that the most interesting part is hidden in the earth.

"Let us in the first place," says Dr. Kellogg, 'consider the Lilies how they grow.' In a climate like that of California, distinguished by a wet and long dry season, we find these bulbs located, say about 6 in. to 10 in. deep, and the fibres or roots shooting downwards 10 in. to 12 in. below that point, in search of food and moisture. Is it not evident then, that such bulbs require a flower-pot at least 18 in. deep? Hence ordinary pots must be utterly useless, or worse—cramping or inadequate to meet even primary natural conditions. Let any one take an improvised 5-gallon tin can, or the like, which is good enough, not to say the best; paint it rudely inside and out to preserve it; punch, say at least three large holes in the bottom of it; plant, as in Nature, in any good compost, and set your can, keg, or crock, as the case may be, in a shallow pan of water. You will soon have the pleasure of seeing a stout stem of the thickness of your thumb rising up and flowering gorgeously. If a plant spend its vital force in vain searching for food or moisture, little or nothing else can be accomplished. Cultivators are apt to complain that many of their bulbs ere they bloom lose one essential beauty of plants, viz., their radical leaves, which they say 'dry up and leave the stems looking naked and bare.' Bulbs are frequently found upon exposed hills and slopes, rocks, &c., descending down dry and very hot valleys into débris and alluvial bottoms, where sand and loam, with underground moisture, abounds. The very same plants are seen to rejoice best where they find some shade and shelter, otherwise they bespeak a struggle for existence—i.e., their leaves prematurely or naturally dry up early to save exhaustion. What lesson do such facts teach? Surely that the cultivator should imitate Nature in her best aspects, and it is by no means difficult to exceed even her highest standard. Bulbous plants form no exceptions. It would indeed be folly to fold one's hands at the very first failure; and with what delight do we behold one joyously filling up the full measure of its glory! In the loose soils in which we usually place our bulbs, are they as well situated as in their native matrix? The soil then must needs be packed firmly and uniformly. It is the life-struggles with difficulties to be overcome that bring out the best qualities of the man—the fruits and flowers, roots and bulbs, born of the great mother. Resistance above reacts below, gives spread, depth, and vigour in the direction of least resistance. The root—the strong foundation—is of first consideration in all structural buildings, and should be well laid, cherished, and preserved. We do not say it should be founded upon some suitable rock, but we sometimes think so; radiated heat and graduated temperature, sweetness of drainage, and it would seem reasonable that in due time some resistance from below also, are all requisite of high culture. May not the cultivator, in his nude solicitude, be also to blame, and by some shortcoming fail, or from excess undo, by overdoing? Suppose he flood too continuously between loose scales, adding excessive heat withal, ought not he to expect just the result urged? Now we seldom see in Nature bulbs sheltered by shrubs, rocks, logs, bark, leaves, &c., or in very compact soils rotten at the tips of the scales, and hence a lure to maggots and grubs; nor often in such sandy and gravelly soils as readily absorb, drain, and disperse any excess of top moisture. We appeal to the observations of careful collectors. Let us then copy the best conditions, and we feel assured the result will confirm our rather hasty hints. In conclusion, we dare not presume that even a tithe of what we ought to say has been noted; in short, we have confined ourselves only to what may be considered peculiar to climatic conditions. Erudite and complex recipes relative to proper mixtures of soils, and common management may well be left to the knowledge and judgment of those who believe in them. With such a wealth of sunlight and heat above as falls to the lot of California, and no lack of the necessary medium moisture below, I see no reason why we may not allure Nature under human hands to grow her fragrant white Lady Washington Lily 6 ft. or 7 ft. high, with ten to thirty or more flowers, just as we see it wild. *L. Bloomerianum*, too, is a perfect giant among Lilies, when at its best making a right super-royal display. Even our little orange *L.*

parvum I found at the Sierra summit, over 5 ft. high, and bearing fifty flowers carefully counted; but the plant was sheltered and shaded by an old emigrant water-tank stilted up, now dry, and long ago abandoned; but its roots found a fair supply of water from beneath."

Increase of Lily Bulbs.

Bulbous plants possess an advantage over many others, inasmuch as they are able to reproduce themselves or even increase themselves without the aid of seeds, notwithstanding which fact, however, the latter organs are in most cases very freely produced, and this is especially the case with Lilies. Apart, however, from the natural processes of division and seminal reproduction the cultivator enhances the multiplication of these charming flowers by layering the flower-stems (after having removed the flower-buds) in light, moist compost, and thus facilitating the production of the axillary bulbs, which in the case of *L. bulbiferum* and *L. tigrinum* are plentifully produced without any artificial assistance whatever. It is now well known that by removing the flower-buds of Lilies as soon as they appear a much larger bulb-growth is obtained; but it does not appear to be so generally known that this removal of the flowers tends greatly to promote the development of axillary or stem bulbs, and especially is this the case if the flower-stems be layered in leaf-mould, or any other light, moist compost calculated to foster the growth of the little bulblets after they appear. One Lily at least (*L. neilgherrense*) naturally adopts this method of reproducing itself, as will hereafter be illustrated, and there is no artificial method of Lily propagation more deserving of notice than this by amateurs, especially as it is, after seeds (and raising seedling Lilies is a long process, as one must wait from three to ten years ere they bloom), the only method of propagation which can be carried on without materially weakening the flowering bulbs. Another excellent plan of propagation, and one long practised by the Dutch bulb growers, is to strip the scales off old bulbs and plant them in light, rich soil, after which they are treated much in the same way as bulbs raised from seed, but they come into bloom at least a year sooner. The following remarks on the treatment and increase of Lily bulbs, contributed by Mr. Frank Miles to THE GARDEN in 1875, will be read with much interest in relation to our present subject:—"Let us begin with the commonest and most ill-used of all Lilies—the common White Lily—*candidum*. We have here a large quantity of it in very big clumps, but from some cause these have never succeeded as they ought to have done, only every fourth or fifth maturing a flower-stem. As soon as they had done flowering, when the stems were beginning to get dry in the end of the month of August, I took up all these clumps and separated the bulbs. I found then that the greater quantity of the bulbs had no roots at all, in fact, wretched little slugs had eaten them off close to the bulb as fast as they grew. After separating and cleaning each bulb I put them into a tub of soot and water for two days to kill any embryo slugs that might have escaped my notice. I then planted the whole in a row 5 in. apart each way and 4 in. deep. Half the row was strongly dressed with soot and half with lime. Another row had no lime or soot, except what they retained from the tubbing. I took up some of the last row the other day and found my friends the slugs calmly browsing on the newly-formed roots as calmly as if soot were not an infallible preventive against their ravages. On lifting those dressed with lime I found the bulbs firm and growing fast with long fleshy roots. It is certainly marvellous how quickly these Lilies reproduce themselves; each scale which has been injured in separating the bulbs has now at its base a small offset about the size of a Cobnut. Some bulbs of *L. chalconicum* that were left in the potting-shed have produced from twenty to thirty small offsets whenever they were bruised. Since writing the above I have searched in the Grass for any scales of the white Lily that were lost when we pulled them to pieces. I found a good many scattered about, and nearly all had on them bulblets of the size of a large Pea entirely formed since the end of August, and that, too, when merely protected by long Grass. I have this afternoon been digging up in a neighbouring nursery about three dozen bulbs of *L. auratum*.

Many of the bulbs were planted late and flowered indifferently; but, on taking them up, we found some of them had as many as twenty small offsets. The thirty-six have given me more than four hundred offsets, some the size of a Cobnut and some about half as big as a Pea." Mr. Barr tells us that in December, after overhauling his stock of *L. auratum*, and taking out the best bulbs, the defective ones remaining were thrown into a large basket with a little Cocoa-nut fibre, placed in a shed, and left until March without being disturbed, at which time they were one mass of young bulblets, thousands having been produced by the old, partially-decayed scales, each little bulblet bearing one or two green leaf blades.

F. W. B.

TREES AND SHRUBS.

EVERGREEN UNDERWOOD.

THE above term is commonly employed to denote such trees or shrubs as grow naturally, or are planted for covert about the woods under the shade of the taller forest trees. The species that thrive in such situations are not very numerous, for there are not many trees that grow well in the shade, and some of those that do grow those depredators, the rabbits, may frequently destroy in hard winters. Besides, there are some species of forest trees under which scarcely anything will grow, owing partially to the density of their shade and their habit of rooting near the surface of the ground. Of this class is the Beech, which is, perhaps, the worst of all. Under a group of Beech trees the ground is as often quite bare as otherwise, and it is needless to plant under them. In Oak and Ash plantations, however, there is always plenty of undergrowth, and in mixed plantations generally there is not much difficulty in getting up a good covert. Oak woods, or woods consisting principally of deciduous trees, have a naked and dreary aspect in winter if they be not relieved by evergreen undergrowth of some kind, and it is not often they are furnished to any extent in that way. Sometimes a few Spruces or Scotch Firs afford here and there a little shelter, and impart a warmer aspect to the scene, but some have an objection to these, and they are the first to be removed when thinning takes place. When travelling by the train miles and miles of woods may often be seen in which hardly a green leaf is visible during the winter months. How different the aspect of things when the wood happens to be well sprinkled with green Holly trees! and there is no better subject than the Holly for such a purpose. We have seen a wood completely transformed in its winter aspect by planting it with Holly. When the tall trees were leafless, and the Bracken brown and dead, the Holly shone out green and glistening in all its beauty. Besides, it has a recommendation from a sportsman's point of view. The Holly is a warm tree, and the birds flock to it in winter, especially the sparrows. When snow is on the ground, if there be a bare or warm spot in the wood, it is under and around a Holly tree. The snow always melts away near it, and at such times you are almost certain to start two or three pheasants from amongst its lower branches if there be any pheasants in the wood; this we have observed many a time ourselves, and gamekeepers will tell you the same story. Where game is reared, therefore, we should say the Holly is one of the very best subjects to plant as underwood; there are none more suitable, for it stands shade better than any other evergreen. The Common Laurel grows tolerably well also, but straggling, and it should be cut down occasionally: rabbits do not eat it, and it affords them excellent shelter. The Rhododendron, of course, is well known for being almost rabbit-proof, and it also grows under the shade of other trees, but it must not be expected to flower freely in such quarters. The Yew is another tree that grows pretty well in the shade, though it gets thin in the branches in the course of time. Nothing approaches the Holly, however, and it soon grows to a large size. Unfortunately, the rabbits often bark the small plants, but I have not seen them meddle with anything but the outside branches of the older trees. Where rabbits are to be feared planting should always be deferred till April or May, when all danger from their attacks is over; besides, that is the best season to

plant Hollies. Tolerably large plants with bushy bottoms are preferable to those of other shapes for planting in the woods. For this purpose the best plan is to grow the trees in the home nursery for a year or two, giving them plenty of room, and afterwards remove them to the woods. They may be planted anywhere under the trees, but at the same time the most favourable spots as regards light should be selected for them.

S. S. W.

Euonymus europæus and other kinds of Spindle Tree.—"*Salmoniceps*" (see p. 26) deserves thanks for directing attention to *E. europæus* as an ornamental berry-bearing shrub, which, indeed, is not the only representative of the genus which we should have in our shrubberies, for *E. americanus*, *E. angustifolius*, and *E. atropurpureus* are also all highly deserving of cultivation. Equally valuable, too, are the varieties of the common Spindle tree (*E. europæus*), particularly the white-fruited sort. They are all highly interesting, and their opening capsules look really beautiful, especially as they occur at a time when other plants are losing, or have lost, their attractions. During the past autumn and winter (particularly about Christmas time) I found them invaluable for various decorative purposes. The branches on which the fruit is produced are so flexible that they can be arranged with other plants with the greatest facility.—E. R. Q. P.

Hemlock Spruce Hedges.—I have often wondered how such fast-growing evergreen trees as the Hemlock Spruce and Lawson Cypress were not more frequently employed as evergreen hedges. I had several Lawson Cypress hedges made in the kitchen garden here to shelter the vegetable crops, and they soon got to the size required, and bore well the cutting and clipping to which they were subjected to keep them in shape. Hemlock Spruce I have no doubt would answer the same purpose, and when tried, both in the case of it and the Lawson Cypress, young plants should be selected so as to start with a bushy form. The soil should be trenched, and if strong, it should be enriched with peat or leaf-mould so that the plants may have a good start, when success would be certain.—W. TILLERY, *Welbeck*.

Scarcity of Holly Berries in Ireland.—At various points along the valley of the Blackwater from Mallow to Lismore, Hollies prevail to a large extent, and trees of them that are generally laden with berries, so much so as to remind one of the Common Hawthorn, are this season literally without fruit. I cannot, however, agree with Mr. Darwin that this general failure is to be ascribed to a lack of bees; on the contrary, like Mr. M'Nab, I can only attribute it to the severe frosts which were experienced in April and May last year, and even to some extent in June, for though the winter of 1875-6 was comparatively mild and open, in spring we had frost, and to this cause (the Holly coming into bloom early in May) and to no other the almost total absence of berries is doubtless attributable. Apples and Pears, too, suffered much from the same cause, though, as far as bloom went, nothing could have been more promising. I never recollect deciduous forest trees being so late in putting on their spring garb as they were last year, and the result was that the beautiful soft green of the Beech and other trees, that are often burnt up by too early a leafage, escaped quite unscathed. Up to the present time we have had nothing but strong winds, rain, and floods. I much fear, however, that "winter will be lingering in the lap of May" this year like the last, and doing work anything but agreeable to the horticulturist.—E. R. Q. P.

NOTES AND QUESTIONS ON TREES AND SHRUBS.

Quercus Mirbecki.—This is a remarkable and handsome species of Oak, a native of Algeria, which may now be seen in full leaf in the Garden of Plants, Paris. It has somewhat the look of a deciduous Oak, and the leaves are large. What a wonderfully rich and varied family of trees adorn in such profusion the plains and mountains of both the Old and the New Worlds!—W.

Ivy as a Carpet Under Trees.—We some time ago directed attention to the value of the common Irish Ivy for clothing the ground under trees on lawns where Grass refuses to grow. How efficient Ivy is for the purpose named is forcibly exemplified in the pleasure grounds at Guernersbury. In these beautiful gardens are several grand old Cedars (*Cedrus Libani*), and beneath them, as far as the branches extend, the ground is closely covered with Ivy, which is perfectly green and fresh under the dense shade, and adds considerably to the effect and finish of the grounds. These large circular beds of Ivy are quite ornamental, and decidedly enhance the beauty of the old trees. The labour of patching the turf under trees on lawns many cultivators know to be considerable, but when once the Ivy is established only a very small amount of labour is required to keep it in order for years. The subject is highly worthy of being again alluded to, and of being kept in remembrance.—"Journal of Horticulture."

IVY IN PARIS.

ANY ONE in the habit of traversing the streets of the better parts of Paris sees many evidences of the graceful way in which the common Irish Ivy is used to embellish the courtyards, the railings, the walls, the villa gardens, and the public gardens of that city. It would be difficult to give any adequate idea of the charms added by this means to many surfaces that would otherwise be hard and bare. In any city or town where the air is not much polluted by smoke, the same effects may easily be produced. In cold districts, where Evergreens are scarce or liable to suffer, it is all the more desirable to make judicious use of the most valuable of all evergreen climbers for northern countries. The figure here given repre-

NEW HYBRID RHODODENDRONS.

To the late Mr. John Standish we are indebted for some of the best of our hybrid Rhododendrons. His attempts at crossing these plants commenced some twenty-five or thirty years ago. A score or so of years previous to that there could be found among the various shades of Rhododendron catawbiense, which was then being raised from seed, varieties approaching white in the colour of their flowers, such as *R. album elegans*, *delicatissimum*, and others. These Mr. Standish commenced crossing with *R. pictum*, and other spotted kinds, which produced the well-known *R. Minnie*, a very late bloomer, and a batch of fine white varieties. A few years later he took *R. Bodaërtianum* and *R. cinnamomeum*



Ivy Bower grown from one Central Stem.

sents a bower formed of Ivy trained to one stem and grown in a tub; it may be considered among the curiosities of Ivy culture. It is common in Paris to have railings and wall-surfaces far above the ground-lines covered with fresh Ivy, and in such cases it has of course to be grown in boxes or the like in rich soil.

The Sarsaparilla as a fine-leaved Plant.—We have lately been much impressed by the rare beauty of form displayed by the leaves of this plant trailing over arches, &c., in one of the stoves of the Paris Garden of Plants. The leaves are large enough to resemble those of some tropical Arums, but more beautiful in form, and the shoots grow many yards in length, producing leaves equally fine all the way. Probably if a great number of shoots were allowed to rise from the root, the foliage would not be so fine. Those having large, warm houses to embellish may use similar Sarsaparilla with advantage.—V.

Cunninghami, and crossed them with *R. Minnie*, all being more or less spotted. His aim was to obtain some late-blooming white varieties with spots on the flowers; and the result more than exceeded his expectations, for not only did he succeed in raising varieties that flowered all through June, and that were handsomely spotted with almost black, chocolate, red, maroon, and various other colours; but he also obtained red, chocolate, and almost black blotches on a pure white ground, nearly as well defined as those on a show Pelargonium. In one of his latest seedlings belonging to this race, viz., *La Baronne Isabelle de Taintignes*, the blotches were very conspicuous indeed. Another interesting cross was that obtained from *R. Blandyanum* crossed with *R. Thompsoni*, one of the Sikkim varieties, the flowers of which are all pendulous and

small in size, and yet, strange to state, some of the hybrids thus obtained had flowers larger than those of *R. Blandyanum*, and one of them, named on account of its striking colour *Ascot Brilliant*, had flowers of the most intense shining blood red. About the same time there also bloomed at the *Ascot* nurseries some very fine red varieties raised from *R. Brayanum* crossed with *R. Minnie*, and *R. Johnsoni* crossed with the same variety. One of Mr. Standish's latest crosses was made between *R. Aucklandi* and some of the best of his late-flowering white varieties. When I last visited *Ascot* in his lifetime he had plants so obtained from 12 in. to 15 in. in height, and he hoped to have bloomed them in two or three years from that time. These seedlings, in the character of their foliage, appeared to be as near as possible between the two parents. Several attempts were made to cross some of the smaller-flowering sorts with the pollen of *R. Aucklandi*, but to no purpose, the failure being attributed to the pollen of *R. Aucklandi* being too large for the tubes of the pistils of the smaller-flowered sorts. One fact which Mr. Standish had deduced from observation he was very fond of impressing on visitors to the *Ascot* nurseries, namely, that in spring, when the early-flowering *Rhododendrons* were in bloom, and there happened to be a frost, the nearer the varieties were to *R. arboreum*, the more were they susceptible to the effects of the frost, while, on the contrary, the nearer the race was to the Caucasian species, the better were they able to resist the destroying influences of frost.

At the time when these crosses were in course of trial the beds of seedling *Rhododendrons* at *Ascot* possessed a peculiar interest. Beds were specially prepared with very fine soil for the reception of the seed; they were between hedges of *Arbutus* to keep them cool and shady, and the rule with Mr. Standish was to have the hedges running from south to north. The hedges being 8 ft. apart admitted of a bed from 2½ ft. to 3 ft. in width, and a gangway back and front for weeding, &c. The seed was sown in the month of June, a slight sprinkling of water given, and a thin layer of *Heath* added to protect the newly-sown seed from the sun's rays. Three or four times during the summer they received a good soaking of water, and in August or the month of April following, the seedling plants were pricked out into pits about 9 in. below the surface, and the plants were set 3 in. apart in the rows. After being pricked out the lights were placed over the pits, and then removed as the summer advanced to make the plants as hardy as possible. They were wintered in these pits, and the following April many of them were large enough to be put out in beds to bloom.—D.

STANDARD ROSE TREES ON LAWNS.

GROWERS of standard Rose trees often complain that they cannot get them to live. Many reasons can be given why standard Roses die off prematurely, but the main one is that suitable varieties are not got from the nursery. An order is sent to the grower that certain varieties are wanted in the form of tall standards. It is thought that every Rose will grow on a *Brier*. Why not? Why should not all Roses grow alike? It is not imagined that the *Brier*, being of a robust nature, requires a robust-growing Rose to be budded upon it. Weak-growing Roses require a dwarf stock. Vigorous ones will grow on a 4-ft. stock, and will live a good many years. In order to get standard Roses to live and flourish, it is necessary, in the first instance, to go to a nursery and pick out one's trees. There may probably be a trifle extra to pay, but plants should be chosen that have been grown two seasons after being budded; they should have compact and moderate-sized heads, and care should be taken that the growth has been vigorous and healthy. Look well at the roots, and see that there is plenty of fibres and no large knobs. Reject all having a large knob or clump at the roots; it denotes old age and a plentiful supply of suckers in an incipient state. Examine the stem of the *Brier* to see that it is clean and free from bruises, which are often caused by the bites of rabbits and sheep during severe weather whilst growing in the hedgerows. The next point is to know the habit of the Rose budded upon the *Brier*. Should the variety happen to be a weak grower, no head of any size can ever be formed on it, and its life will be a short one. On the contrary, should its habit be vigorous, with a free-blooming tendency, that Rose tree may live for many years. If tall standards be desired, the only safe plan to prolong their existence for a considerable time is as follows:—Dig out a good-sized hole in the lawn (say 3 ft. square and 2 ft. deep), remove all the bad soil and rubbish, and fill up with a rich compost consist-

ing of decayed turf, rotten manure, and ½-in. bones. Let the holes be already prepared; then plant the standards, tread the roots firmly in, and secure the stems to stout stakes with Cocoa-nut bands. Roses of a robust-growing habit will live a great number of years if planted in the way just stated. When a standard Rose tree dies, the cause in most cases arises from a weak Rose having been budded on a tall *Brier*, and sometimes from its having insufficient nourishment. How is it possible for a weak-growing *Brier* Rose to live upon a lawn formed of poor soil, on which a few spadefuls of mould have been thrown, and perhaps only one spadeful of manure added? And yet there are many who adopt this style of planting. Rose trees so planted, however, soon begin to show signs of sickness, and small blooms are the result; if they should manage to survive one summer they die the following. Roses, in order to flourish, especially standards, must have a good soil enriched with manure in order to make them grow and assume a healthy condition. The soil that the Rose prefers is rarely found on a lawn, and it is for this reason that a large pit or hole must be made as before mentioned. Syrioting the foliage during the summer evenings, mulching the roots with manure in winter, picking off caterpillars in spring, the application of liquid manure, and other general routine, must be attended to if fine Roses be desired; spring and summer pruning must also be attended to. If the above instructions be followed, rosarians, however inexperienced, will be successful. Subjoined is a list of varieties suitable for growing on a lawn; it embraces none of the weak kinds so liable to disease and death; all of them form large-sized heads, and most of them belong to the finest and best of our exhibition varieties, viz:—*Hybrid Perpetuals*—*Abel Grand*, *Baron Hausmann*, *Baroness Rothschild*, *Beauty of Waltham*, *Centifolia rosea*, *Charles Rouillard*, *Charles Lawson*, *Cheshunt Hybrid*, *Dr. Andry*, *Duc de Rohan*, *Duke of Edinburgh*, *Dupuy Jamain*, *Edouard Morren*, *François Michelin*, *Fisher Holmes*, *General Jacqueminot*, *John Hopper*, *La France*, *Lord Clyde*, *Madame Charles Wood*, *Madame Rivers*, *Madame Therese Levet*, *Marie Rady*, *Marquise de Castellane*, *Maurice Bernardin*, *Nardy Frères*, *Jules Margottin*, *Paul Neron*, *Pierre Nottling*, *Princess Louise (Laxton's)*, *Prince Camille de Rohan*, *Roynolds Hole*, *Vicomte Vigier*, *Victor Verdier*. *Moss*—*Baronne de Wassenaer*, *Madame Moreau*. *Tea*—*Madame Falcot*, *Madame Levet*, *Madame Berard*, *Gloire de Dijon*, *Belle Lyonnaise*. *Noisette*—*Bouquet d'Or*. H. TAYLOR.

A Purple-leaved Ivy.—During the last few years I have been cultivating and increasing a beautiful purple-leaved Ivy, which I discovered a few years ago, and which is considered by those who have seen it to be the best of all the Ivies. Imagine a wall all through the dreary winter covered with large leathery leaves of a deep bronze or dark purple colour, and you will be able to form some idea of the appearance of this Ivy. I should be pleased to show it to any one who may feel interested in such matters; all I wish is that the plant was somewhere where it would be more appreciated, for it is growing on an old brick wall ill adapted for showing off its rich colour to advantage; but if grown on a light stone terrace wall or a similar position, or in light-coloured vases, or even as an edging near white or light gravel, it would form one of the most attractive creepers known.—T. WILLIAMS, *Ormskirk*.

Spent Tan.—A few weeks ago a question was asked and answered as to the utility of old or spent tan. Tan thoroughly decomposed, of course, becomes vegetable soil, and makes an excellent top-dressing for borders or beds of flowers, where the soil happens to be stiff or clayey, giving such beds a warm, neat appearance; but the best use to which I have seen it applied was as a mulching for Strawberries—about 4 in. of the material being spread between the rows, as the rains will wash down the particles, leaving 1 in. or more of the coarser material on the top, which instantly becomes dry, on which the fruit when ripe will lie as on a slate. I have seen fresh tan applied extensively to Thorn hedges when newly planted; about 6 in. thick was laid on each side of the Thorns. This acted as a cooling medium in dry summers after planting, and owing to the tan being raw and fresh, not a weed would come through it; the year after the tan was dug in among the soil, and no doubt helped to feed the young trees.—THOS. WILLIAMS, *Ormskirk*.

Early Blooming Primroses.—There is no good ground for the assertion that dark-coloured Primroses flower earlier than light-coloured ones: at least my experience as regards this class of plants does not lead to that conclusion. Just now I have several hundred of large established plants growing in beds in the open unsheltered ground, and all are more or less in bloom, but the white and sulphur-coloured kinds are the latest in flower. They did not begin to blossom earlier than the dark-coloured forms, but it is an undoubted fact that white frosts more readily affect the dark-coloured than the

light-coloured flowers; and it is because of these frosts that the dark-coloured kinds have the least amount of bloom. Early flowering in any Primrose is entirely a matter of cultivation during the previous summer and autumn. Those plants that have the most robust crowns and the strongest foliage will assuredly begin to flower earliest, and thus it may not infrequently happen that the cultivated garden kinds will often bloom much earlier than the wild plants that have to struggle for existence on banks and in nooks in woods where there is neither too much nutriment nor moisture. In spite of the excessive heat and drought of the late summer months of last year all Primrose and Polyanthus plants did exceedingly well, the fine rains of September falling just in time to save the foliage and induce an early growth. The plants are therefore now unusually strong, and are flowering very early; indeed, beds of Primroses, provided we have a few dry sunny days, will be full of flower.—A. D.

Grafting Figs.—Can I overcome the difficulty which I find here in grafting or budding the Fig tree? I have a lot of old native stocks of useless sorts which I am anxious to utilize by grafting with good kinds, but have failed as yet, owing, I imagine, to the abundance of milky sap which exudes from the slightest cut at all seasons of the year. I have been informed that the Fig may be grafted with as much success as other fruits, but although I have been most successful in grafting and budding the native stocks here with almost all the kinds of fruit trees that are cultivated in England, I cannot succeed in grafting the Fig.—R. C. LEE, *Bundrole, Kangra, E.I.* [Grafting the best kinds of Figs on the roots of the common edible sorts would no doubt be successful, since English gardeners in this country find the India-rubber (*Ficus elastica*) to succeed well on common Fig roots as stocks, although they never, so far as we are aware, graft the odible Figs, they being so readily increased by root or stem cuttings or by layering.]

PEAS—THEIR VARIETIES AND CULTIVATION.

The following are extracts from a lecture on this subject delivered the other day by Mr. Pavey before the Lee and Blackheath Horticultural Society. The Pea, said Mr. Pavey, contains more flesh-forming food than is usually found in other vegetables. Its varieties are legion, and it is no easy task to make a selection; nevertheless, I shall endeavour to point out those kinds which in my experience are most worthy of cultivation. In cultivating the Pea, one of the great aims should be to secure a supply of well-filled pods through the greatest number of months, embracing, therefore, early and late varieties. Autumn sowing, provided you can preserve your crop through the winter, will, of necessity, give you a proportionately early gathering. Sowing in pots, to be transplanted, will do the same, and will certainly enable you to place on the table an early dish of Peas; and if quantity be not much regarded, we may practise this mode of cultivation. The Kentish Invicta is one of the best for these purposes, or Dickson's First and Best, or Sangster's No. 1. From the two former I picked, in 1875, on June 10; in 1876, June 24; whilst from the latter not until July 1. A new Pea, Laxton's The Shah, costing as seed 7s. a quarter pint, was ready at the same time as the Kentish Invicta. Growing as we do at least sixty varieties of Peas, all of which are sown on the same day, for the purpose of testing their early, continuous, and late bearing, as well as quality and quantity, the Society will, I trust, accept any statements I make as of no mean value. All Laxton's Peas are good, wanting, however, in flavour, but good croppers. They are high in quantity, and are prolific. His Superlative, which grows 7 ft. high, is one of the best, whilst Fillbasket and Omega are good croppers, but deficient in flavour. Maclean's Little Gem and Blue Peter are both good, the last being the best. In succession to these come Advancer, then Prolific, Best of All, and, finally, Premier. Veitch's Perfection, Napoleon, Eugenie, and Princess Royal, are all to be highly commended. Carter's G. F. Wilson is, in my opinion, entitled to a place in every garden. Among the tall-growing Peas, Champion of England, Fortyfold, Paradise Marrow, Huntingdonian, Competitor, Ne Plus Ultra, and Fairbird's Surprise, are the best; I can commend all these, which are of first quality, and from which selections may be made to supply the main crop as well as for late picking. As a summer vegetable, and one universally prized, it should ever be the aim of the cultivator's special study to secure not merely a good crop of Peas, but also such a variety as will continue the longest in bearing. To be able to place on the table from May to November a good dish of this much esteemed food, the cultivator must sow in the autumn, and carefully preserve his tender Peas by judiciously protecting them during the winter months as well from frost as from slugs and birds; by these resources he may have Peas a week or two earlier than he would have from spring sowing. Spring sowing in pots or, what is better still, sowing on turf, care being taken not to let them be overdrawn or made weakly by coddling, provided a selection be made of the earliest varieties, will ensure an early picking. So treated, the Kentish Invicta or Dickson's First and Best will ripen a week earlier than Sangster's No. 1. There are, however, Marrow Peas of recent introduction—Sutton's Emerald Gem, Laxton's Alpha and The Shah, the last the best, which I recommend far before the early white Peas. For the main crop Maclean's Advancer, Prolific, Best of All, and Premier, or Veitch's Perfection and Carter's G. F. Wilson, growing 3 ft. 6 in. high, cannot be surpassed. If

taller Peas be wanted, we cannot do better than grow the Champion of England, Fortyfold, Paradise Marrow, Huntingdonian, Competitor, or Ne Plus Ultra. The later croppers—Eugenie, Hare's Dwarf Mammoth, and Ne Plus Ultra, ought to be sown the last week in June. The cultivation of the Pea should be on the most liberal scale; well and deeply trenched soil, well manured, either with well-matured stable produce, or, what is equally good, well-rotted garden rubbish. One of the best sites is the Celery trench, provided it be open. All rows should run north and south, which will alone give to both sides the direct rays of the sun. The rows should be as far apart as the Pea will grow in height. These conditions observed, and the variety good, we may fairly expect a good crop of Peas as the result of our labours.

In the discussion which followed Mr. David Hull remarked that his own experience was strongly in favour of Sangster's No. 1 as an early Pea, if grown in pots and afterwards turned out in a properly prepared border. He had grown three varieties in a row—dwarf, higher, and highest—with considerable success. Mr. Abel North said that last year was one of the best Pea years he had ever known since he had been in Blackheath Park, and that was a period of ten years. Laxton's Peas, he had ever found, were generally good. William the First was, in his experience, the best and the earliest Pea; he had picked Peas on the 24th May and as late as November. To get a good dish of Peas a week or ten days earlier than was common was worth any amount of labour. Mr. Kempster was in favour of sowing on turf, and transplanting without disturbing the roots. Dickson's First and Best as an early Pea, and Champion of England, were his favourites. Mr. Tomlinson agreed with the reader of the paper and other speakers as to the value of sowing on turf. When in Norfolk, and also in Derby, he had gathered on the 8th June. The Early Emperor he regarded as the best, and a good second was Dickson's Favourite. Mr. W. North said his rule was never to sow until February, and yet he gathered almost as early as his neighbours, and often as late as November. Dr. Carr urged the value of obtaining seeds from the south of Europe, knowing, from experience, that such Peas will ripen their fruit earlier by many days than the same variety grown in England or Holland; if, therefore, it be of importance to be earlier in the field, one of the readiest means is to purchase seed which has been grown in the south of France.

OBITUARY.

We have to announce with deep regret the death of Mr. Harrison, of the North of England Rose Nurseries, Catterick Bridge, Yorkshire, an event which took place suddenly on the 4th inst. Mr. Harrison was one of the most successful of north country Rose growers.

NOTES AND QUESTIONS—VARIOUS.

Glazing without Laps.—I am glazing a Peach-house with a steep incline without laps. The glass is cut fairly even, but still there is a drip. Can any of your readers suggest any thing of a transparent character to run in between the panes so as to exclude wet? I am trying as an experiment a plan of slipping the panes of glass up in grooves and wedging them in with fine india-rubber tubing. Will this be likely to succeed as regards the durability of the tubing?—G. C.

Salt as a Manure.—For light, sandy soils salt is one of the most economical and effective of all artificial manures. The best season in which to apply it is during winter, over vacant ground that has been previously dug or trenched. It should be sprinkled on the surface at the rate of 1 lb. to 1½ lb. per square yard, and left for the rains to wash it into the soil. Previous to seeding or cropping, the ground should be lightly pointed over, as the salt has a tendency to cause it to bind together.—W. H.

Protecting Peas.—"N. F." (see p. 99) wishes to know how his early Peas sown in November may be best protected should cold cutting winds follow the present mild weather. I have some in the same stage of forwardness as those of "N. F." and have put a ridge of ashes on each side of the rows, high enough to shelter the Peas at present; but should severe frost or cold, cutting winds set in, some small branches of Spruce Fir will be put in the side of the rows to afford better protection. If sparrows be troublesome in nipping the foliage, which they often do in February and March, a little soot dusted over the rows now and then will help to keep them off.—WILLIAM TILLEY.

Anemones in Flower in Hampshire.—Different varieties of Anemone (*A. coronaria*) are flowering much earlier with me this year at Lymington than I have ever known them to do at Cannes, whence the tubers were brought two years ago. They occupy a very high and exposed spot in the kitchen garden, and notwithstanding the severe storms of wind and rain to which they have been subjected, they have been quite gay ever since the early part of November, though not quite so bright in colour as they would have been had we had more sunshine.—M. G. S.

Soiling Mushroom-beds.—The surface of Mushroom-beds can scarcely be made too firm, as the Mushrooms in that case form directly on the surface, and are easily gathered without disturbing the beds. In loose soil, on the contrary, the Mushrooms will frequently form on the manure, as mentioned by "W. D. C." (see p. 77), and will force the soil up in their progress through it. We have at present many under such conditions that have come up on last season's Melon-beds, although the house has been kept quite cold, and the beds have been covered with coal-ashes, on which *Calceolarias* and similar cool-house subjects have been set.—J. GROOM.

Centennial Exhibition Awards.—Mr. Bull, King's Road, Chelsea, has just received official notice from the Director-General of the Philadelphia Exhibition, that he has been awarded a medal for pictorial representations of new plants.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

GROWING SOME RARE HARDY PLANTS.

IN an underground tank filled with leaf-soil and peat, I have had some of the grandest plants of *Cypripedium spectabile* I ever saw; one plant had thirty spikes nearly 2½ ft. high, all bearing two flowers on a stem; almost side by side are the new Californian Tulips, growing away right merrily. I put a quantity of rich leaf-soil below and then a good layer of cinders; *Calochorti*, *Cyclobothras*, *Brodiaeas*, *Tulbagias*, *Iris tuberosa*, and *I. persica*, were then planted in a layer of sand above the cinders. All of these have done well. *Cyclobothra pulchella* (the Golden Star Tulip) was in bloom nearly the whole of the early summer, and planted in this manner it will be one of the finest bulbs for the herbaceous border. I am eagerly looking forward to seeing my *Calochorti* this summer, as at present they seem to be doing rather too well. Mr. Ware succeeds with them on a small, raised rockery, and I fancy we shall find them quite hardy when better understood. I can thoroughly recommend for all warm soils the Orange *Alstroemeria* (*A. aurea*), which grows and seeds freely here; it is difficult to transplant, and should be obtained well established in pots, and planted with a layer of coarse ashes immediately below the tubers to keep them dry during the winter. Another tuberous rooted plant requiring similar culture is the variegated *Commelina cœlestis*; its leaves are beautifully striped like those of the variegated Lily of the Valley, and the blue flowers form a delightful combination. I think some Cocoa-nut fibre should be put over the roots in winter; indeed, the value of this material for protective purposes is not nearly well enough known. It forms a capital component of soil for sowing seeds of all sorts, keeping them moist and the soil thoroughly porous. I tried *Hedychium Gardnerianum* out-of-doors this summer according to Mr. Harpur Crewe's advice, but though the roots increased rapidly the leaf-growth was not very encouraging, and I do not intend to try it again. I have a plant of the Scarborough Lily (*Vallota purpurea*) doing well out-of-doors in a warm corner, well protected with Cocoa-nut fibre, but I find the *Belladonna* Lilies send up their leaves too early, so that they get cut by spring frosts. I saw at Oxford a grand plant in the open border of *Pancreatum illyricum*; *P. maritimum* has not proved hardy there, but the first-named is evidently a perfectly hardy border plant, and should be planted extensively. *Crinum capense* is of course quite hardy here. Colonel Trevor Clarke speaks of *Crinum ornatum*. I saw at Glasnevin an enormous spike of flowers of *Crinum ornatum grandiflorum*. The climate of Glasnevin is very different from that of the Midland Counties. Has *Amaryllis Ackermanni pulcherrima* flowered with Mr. Harpur Crewe? I have it, but have not yet tried it in the open ground. The new Golden Chickweed, grown in moist soil, makes one of the finest carpet plants I ever saw. This would be a useful plant for carpeting large beds of *Colchicum autumnale* or *C. speciosum*. The little Purple-leaved *Oxalis* (*O. corniculata*) is another plant which would form an exquisite contrast with the lovely autumnal *Crocuses* or *Colchicum album*. Talking about contrasts, I am trying 100 plants of *Lilium longiflorum* in a bed of *Clematis Jackmanni*; they would be even more lovely among different coloured *Petunias*. I have this Lily growing among Monthly Roses, just peering through the pegged-down bushes, and peeping above the clusters of its blushing inamorata.

FRANK MILES.

PLANTING OUT FORCED BULBS.

WHAT to do with Dutch and other bulbs, after they have flowered in pots, appears with many to be a difficult question. My own way of dealing with them is to plant them out where they can be left undisturbed. But the question may arise, where is such a spot to be found; for beds and the majority of borders in which bedding plants are grown require deep

winter cultivation. In spring gardening bulbs, form an important feature, but they must either be imported or selected ones of home growth, as, on account of their having often to be lifted when in full growth, and laid in by the heels, as it is called, to ripen in out-of-the-way places, they diminish rather than increase in size and strength. It is, however, quite another matter when they can have a permanent position, in which they are allowed to perfect their foliage and ripen their bulbs undisturbed in the ground. Taking them up and storing them is an unnatural system—a trying ordeal through which they may live, but that is rather a proof of their strong vitality than that they are in any way benefited by the exposure to which they are thus subjected. Since herbaceous and mixed borders proper have, however, once more become a reality, positions for bulbs will be found in them; indeed, we have annually planted the remnant of our forced bulbs of all kinds in such borders, and certainly they are as capable of taking care of themselves as any plants with which I am acquainted, for they not only grow and flower freely, but increase into large masses, a condition in which they have a far better effect than if planted in rows with geometrical precision. Having stocked all such available positions and the margins of permanent beds devoted to *Rhododendrons* and similar plants, we last year planted all our surplus bulbs on the edges of our Rose beds and banks, and they are now showing an abundance of sturdy spikes of bloom, which materially add to the appearance of the beds without the least probability of detracting from the success of the Roses as by the time their leaves get thick, the bulbs will be going to rest under their shade, while the same cultivation suits both, merely keeping the soil free from weeds and adding a good top-dressing of rotten manure and rich mould, for neither likes the spade among their roots. It has been remarked that bulbs are difficult to suit as regards soil, but if it be rendered friable enough by cultivation for ordinary border plants, there need be no fear on this score. Of course if the object be to get fine bulbs for any particular purpose, rich soil and plenty of room for each bulb will yield proportionally rapid and satisfactory results; but for affording a brilliant display in the open air, plant well at first, and they will need but slight attention afterwards.

JAMES GROOM.

Good Climbing and other Roses.—The reddest and richest of all my Roses is Reynolds Hole—a Rose worthy of its namesake. The new Tea Rose, Letty Coles, seemed to me, at the Westminster Aquarium, to be the loveliest Tea Rose I ever saw, and the largest; it is flesh-coloured, richly marked with deep pink, and entirely distinct: Mr. Keyacs, of Salisbury, is sending it out. The old Tea Rose, *Abricoté*, is another plant for our borders; it is perfectly hardy, and never ceases blooming. Rose Princess Louise Victoria is the best pink climber I know of—climbing well and bearing good flowers in colour something like those of *Eugenie Verdier*. Climbing Jules Margottin I do not think much of, but climbing Victor Verdier is one of the best Roses in my garden, deliciously sweet, and blooming profusely in dense clusters.—F. MILES, *Binham*.

Grafting Figs (see p. 120).—Various modes of grafting and inarching Figs may be performed with safety, but, as a rule, the one which I practise is that known as dovetail grafting, a plan by which fruit can be gathered from the scion during the year in which it is grafted. Now is a good time to perform the operation, provided the trees have been some time started and are commencing to form leaves. The stock may be of one or more years' growth, but I prefer both it and the scion being of one thickness. I select a clean, straight place on the shoot on which to insert the scion, which should be about 2 in. in length; the scion should have a bud in the middle, its ends should be clean and cut straight across, and it should be split up through the pith; I then place the scion on the stock, and mark at each end its exact size, removing the wood to a depth corresponding with that of the scion, and tying neatly and firmly with a piece of Reed Grass; I then make a deep incision immediately before the bud, which soon begins to grow. My practice, I ought to say, applies to Figs under glass. Some shoots here from eyes put in last year as described, are upwards of 5 ft. in length, and nearly ¾ in. in thickness.—J. HUNTER, *Lambton Castle*.

Poinsettia pulcherrima major.—I have not seen this variety in flower. Is it merely a stronger grower, or are the bracts larger, different, or higher-coloured than those of the more common type? I also wonder that the so-called *P. pulcherrima alba* is not more grown than it is.—D. T. F.

NOTES OF THE WEEK.

EDELWEISS IN OXFORDSHIRE.—Mr. Vair's very interesting notes about this in THE GARDEN (see p. 105) remind me that I saw this plant growing vigorously as a border-flower in Mr. Boulton's collection at Great Tew Park, in Oxfordshire. Growing freely in rich borders, however, the plant does not look quite so pretty as on the mountains.—V.

PAPER-WHITE NARCISSUS.—Large clumps of this snow-white-flowered Narcissus, growing close to a wall in the Fulham Nurseries, are now throwing up scores of vigorous flower-spikes, crowned with from ten to twelve buds and expanded blossoms, each of the latter being as large as a florin. The beauty of these open-air flowers is greatly superior to that of the white kinds forced in pots which one usually sees in the market.—W.

ANEMONE PULGENS IN JANUARY AND FEBRUARY.—This early and brilliant flower has been in bloom in quantity in M. Henri Vilmorin's garden at Verrières, near Paris, for the past five weeks. It is impossible to over-estimate the value of this plant as an early spring, and even a winter flower in mild seasons. I have lately had the opportunity of seeing in Paris some vases solely filled with the cut flowers of this Anemone, and the effect of the flowers by artificial light was almost as fine as it is in the open ground in the sunlight.—V.

MOLINIA CERULEA VARIEGATA.—This British plant in its variegated form is not infrequently used as an edging for flower beds; this spring, however, Mr. Green, of the Holmesdale Nurseries, Reigate, has been very successful in forcing it in pots; and, treated in this way, it forms tufts of pale green, yellow-striped foliage, well suited for association with Cyclamens, purple and blue Hyacinths, and other spring flowers.—B.

DAPHNE INDICA RUBRA OUT-OF-DOORS.—A specimen of this well-known, sweet-scented, greenhouse shrub growing in an outside border at the end of one of the plant-houses in Osborn's nursery, is now, as it has been all through the winter, producing trusses of rosy-white blossoms in abundance. Might not this Daphne, therefore, be advantageously planted in warm, sheltered positions in the Southern Counties, where it would doubtless succeed even better than at Fulham?—C.

CYCLAMEN PERSICUM OUT-OF-DOORS.—The Hon. and Rev. J. T. Boscawen informs us that the Persian Cyclamen succeeds well out-of-doors in his garden at Lamorran, in Cornwall, planted under a specimen of *Pinus insignis*, the falling leaves of which afford protection to the corns alike from frosts and droughts. It is also now flowering in the open air in Sir W. Marriot's garden, at Blandford, in Dorset. It would, therefore, seem to deserve a place on sheltered rockwork, especially in our southern counties, or in favourable localities elsewhere near the coast.—B.

CLIVE HOUSE SEEDLING GRAPE.—This Grape was exhibited at South Kensington in December last, and received a first-class certificate as a large-berried late Black Grape of good quality. At the meeting of the Royal Horticultural Society's Fruit Committee, held there on the 14th inst., the name was formally cancelled, owing to some misrepresentation having been made by the exhibitor.

THE WHITE-FLOWERED JAPAN QUINCE.—Flowering specimens of this valuable autumn, winter, and spring-flowering shrub were exhibited before the Royal Horticultural Society, on Wednesday last, by Messrs. Veitch & Son, and were awarded a first-class certificate. The flowers and buds of this variety are pure white, without a trace of the flesh-colour or pink suffusion which is to be found in all other so-called white varieties of this plant. When sufficiently plentiful to be planted in shrubbery borders, bushes of it will form a striking contrast with those of the crimson-flowered kinds.—F.

WHITE CALVILLE APPLE.—A bush specimen of this well-known French culinary Apple, growing in a pot, was exhibited at South Kensington on Wednesday last by Mr. Stevens, of Trentham. It bore about a dozen large and well-ripened fruits, and a cultural commendation was awarded it. Similar specimens of this variety, grown in an orchard-house, are used at Trentham for decorative purposes.—B.

CYDONIA JAPONICA AS A STANDARD.—A large plant of this attractive spring-flowering shrub, grown as a standard in a villa garden at Tooting, is just now a mass of rich scarlet blossoms. It has a clean stem of 3 ft. or 4 ft. in height, surmounted by a well-shaped head from 5 ft. to 6 ft. in diameter. This *Cydonia*, grown in this form, potted in the autumn, and brought into flower a month or so earlier than usual, would doubtless be found very useful in the conservatory. Plants of it in this shape could easily be secured by grafting the

Cydonia on stems of the common White Hawthorn, and when well established, potting them and placing them in a cool house as soon as cold weather sets in. Thus treated, their bright scarlet blossoms would show themselves off to advantage, and would probably give more satisfaction than more troublesome and costly subjects.—S.

CROCUS-GROWING FOR MARKET.—The Crocus beds in Mr. Yeldam's grounds at Hammersmith are now very effective, upwards of $\frac{1}{2}$ acre being occupied by them. The common yellow, white, and blue are the kinds grown, and being intermingled they have a fine appearance. Being grown for sale in a flowering state, they are taken up in small clumps, their roots tied in Moss, and packed in boxes. Many thousands of them are disposed of in Covent Garden, but the majority of them are sold by auction.

APPLES FROM A SUSSEX GARDEN.—One the most interesting features of the Exhibition held at South Kensington the other day was a collection of Apples, sent by Mr. W. E. Hubbard, of Leonardlee, near Horsham. Not only were the individual fruits large of their respective kinds, and remarkably handsome in point of colour, but in nearly all cases they appeared as plump, and as fresh as if recently gathered from the tree. These Apples were far more beautiful than any we have seen imported from the Continent.—F.

CAMELLIAS, AZALEAS, AND EPACRISSES.—Of these many hundreds are now in bloom in Messrs. Lee's conservatory at Hammersmith. Among Epacrisse *E. Hyacinthiflora carminata* and *E. rubra superba* are the most effective, and amongst white Azaleas one of the best is Mademoiselle Maria Lefebvre, many of the blossoms of which measure from $\frac{1}{2}$ in. to 5 in. in diameter. This is probably the largest white kind of Azalea in cultivation.—S.

CLEMATIS INDIVISA LOBATA.—This is without doubt the most useful greenhouse climber that we possess for furnishing a quantity of pure white blossoms during the winter and spring months. A large plant of it, growing in a cool-house in Messrs. Osborn's Nursery at Fulham, is now thickly furnished with long pendent wiry shoots, literally covered with bloom, a condition in which it has been for many weeks past. In addition, too, to their attractiveness on the plant, the flowers are invaluable for cutting.—S.

CAMELLIAS FOR THE LONDON MARKET.—Some idea of the extent to which Camellias are grown for sale near London may be gleaned from the fact, that one grower alone at Hammersmith, cut on one morning last week 325 dozen blooms, all of which were disposed of in the London florists' shops.

EURYCLIS AUSTRALASICA.—Flowering plants of this old-fashioned species were exhibited by Messrs. Veitch & Sons at South Kensington on Wednesday last, and excited considerable attention. It is a bulbous plant, bearing dense clusters of pure white Ranunculus-like flowers. Its leaves are like those of a strong-growing *Funkia*, being ovate-cordate, and of a bright green colour. The specimens shown were flowering very profusely, and the plant deserves notice as one well adapted for supplying cut flowers as well as for general decorative purposes. It was figured by the late Dean Herbert in his "Amaryllidaceae" some thirty years ago, and also in the "Botanical Register," vol. ix., t. 715.—B.

EARLY FLOWERS AND THE RAIN.—It is astonishing how well Violets have flowered this winter, and how thoroughly pure and sweet they are after weeks and months of rain; the water seems to run off from such tall, single Violets as the *Czar* and *Victoria Regina* without hardly wetting them. Snowdrops, too, seem to enjoy the continuous wet weather, and no amount of it tarnishes their purity. The large Crimean and old single Snowdrop are especially fine this year, and look all the more pearly-white from the incessant downpour. The Early Forget-me-Not (*Myosotis dissitiflora*), on the contrary, does not seem to like the constant wet. The larger patches of it seem inclined to die off, and the smaller ones are neither so healthy nor so early as usual. Early Primroses also seem to dislike the incessant rain, and many of their flowers here are partially disfigured and decomposed with the wet.—D. T. FISU, *Hardwicke*.

A FIFTY-GUINEA ROSE PRIZE.—At the last meeting of the Committee of the National Rose Society it was announced that Mr. Cranston, of Hereford, had offered a challenge cup of the value of fifty guineas to be competed for by amateurs, the cup to be won in three years: thus, if Mr. A. wins it in 1877 and Mr. B. in 1878, then only A and B are to compete for it in 1879.

LILY BULBS.—Our descriptions and figures of some of the more remarkable Lily bulbs will be completed in our next issue. The space occupied during the present week by such a number of engravings, necessitates our withholding several other valuable communications.

THE FLOWER GARDEN.

A HIMALAYAN PRIMROSE.

(PRIMULA INVOLUCRATA MUNROI).

THIS very distinct and beautiful Primrose appears to have been first gathered by Captain Munro, on the Himalaya Mountains, at an altitude of 11,500 ft., where it was found growing in company with the lovely blue *Cyananthus lobatus*. Its tufted, dark-



Primula involucrata Munroi.

green leaves, which are crenated, are borne on long, winged petioles, and its white, lilac-tinted flowers, each about the size of a sixpence, are borne three to five together on a slender stem from 6 in. to 8 in. in height. *P. involucrata* Munroi differs from the type in being larger in all its parts and more



Blooms of Primula involucrata Munroi (natural size).

vigorous in its growth, but both forms well deserve careful culture. They are perfectly hardy, and succeed well in any well-drained soil, but best among nodules of sandstone, and rich vegetable earth in sheltered positions. The annexed sketches of this delicate Primrose were made at South Kensington about a year ago, when Messrs. W. Cutbush & Sons, of Highgate, exhibited a pan of it in excellent condition, its graceful trusses of delicately fragrant lilac or white

blossoms being freely produced from among clusters of healthy leaves, which overran the surface of the pan; indeed, the plant was effective enough to be very generally noticed and admired, although surrounded by masses of more highly-coloured and more showy decorative plants. This Primrose produces seeds in fair quantity, and these grow readily if sown as soon as they are ripe in a warm greenhouse temperature; but it is essential that the soil in which the seeds are sown is never allowed to become dry, as that at once kills the young seedling plants; to prevent such an occurrence, boxes are preferable to pans, especially to new ones, since the latter absorb moisture quickly from the soil and starve the young plants to death almost before they peep up through the mould; hence it is that we often see seedling Primroses and other delicate plants come up in the centre of the pan, while the soil near the sides is unproductive. B.

CHRYSANTHEMUM CULTURE IN RUTLANDSHIRE.

Now that Chrysanthemums are getting more and more every year into favour, perhaps a few observations, the result of four years' experience, at least as far as their cultivation in pots is concerned, may be welcome to some who are only just beginning to take them in hand. To begin at the beginning; let us suppose that the would-be grower has been captivated by some good display, such as that which may yearly be seen in the Temple Gardens and elsewhere, and that he has noted down the names of the sorts which pleased him most, he naturally asks how he can grow plants equally fine, and where he can obtain cuttings. In the first place, be it stated that, in order to grow Chrysanthemums in perfection, they must be raised from cuttings every year, for plants obtained by dividing the old stools will not produce such fine blooms as plants raised annually from cuttings. It would therefore seem obvious that the beginner has an equally good chance with the grower who could procure his cuttings from his own plants as early as he wished; but that is not the case, for it is almost impossible to obtain fine stocky-rooted suckers or cuttings very early in the season, unless one has old plants from which to obtain them. I would therefore recommend the purchase of rooted cuttings in the spring, which any of the leading nurserymen can supply, and which I believe are usually sent out early in April. These, if well attended to, will make good plants in autumn, and will generally supply a goodly stock of early cuttings. This is a much safer plan than trusting to unrooted cuttings in the winter sent by post. At all events I recommend, in the case of the large-flowering varieties, that the cuttings should be taken as early as possible, say about the middle or not later than the end of November. Do not take any cuttings of shoots that may be on the old stems, but choose short, sturdy suckers with a portion of root attached to them if possible, and pot each separately in a small 60-sized pot in fibrous loam, mixed with a little leaf-mould if the loam be heavy. The soil should not be too wet. Place the young plants on a bed of coal-ashes under a cold frame close to the glass, and keep them pretty close till they are established, after which they cannot have too much air, and only need protection from severe frost, heavy rains, or cold, cutting winds. It is a mistake to winter them in a greenhouse, as they are never so healthy, and are apt to become tender and weakly even with abundance of air, and to suffer if the atmosphere of the house be kept too dry. Supply them continually with water, and as the spring advances, watch their roots carefully and shift the plants into larger pots before they become pot-bound. They should not, however, receive their first shift until the roots have well penetrated the drainage, as harm might result before spring-growth had well begun. I prefer only to give a small shift for the first one, say, into 4-in. pots, but afterwards they may go into 7-in. or 8-in. pots, and from these into their blooming pots without danger. I use no leaf-mould in the compost after they have left the cutting-pot, but simply fibrous loam (which may be used quite freshly cut), and any well-rotted manure in moderation at first, but later on in larger quantities, according to the condition of the loam. The finest stimulant, as mentioned in a former number of THE GARDEN, is manure collected fresh from the stable and stored in a sufficient quantity to heat a little, when it should be worked through a fine

sieve until thoroughly broken up. If very large blooms be desired I do not stop the plants at all; but I have grown plants in 12-inch pots of some of the large-flowering sorts like *Empress of India*, with a dozen or more stems and as many blooms, each measuring quite 6 in. in diameter. Plants of the above-named variety would in that case be about 5 ft. high when in bloom, but would, of course, attain a greater height if kept unstopped. If considered desirable to stop the plants, with a view to making bushy specimens or increasing the number of blooms, this should be done when they are about 6 in. high, taking care to pinch out the points. It is a bad plan to let them grow longer than is intended, and then to top them back several inches.

Lyddington, Uppingham.

B. H. MARGETTS.

HYBRID PRIMROSES.

PRIMROSES are, perhaps, the easiest flowers to hybridize and the best for beginners in that delightful occupation; of course the piu-eyed ones are the easiest to cross; indeed, I have never crossed any of the thrum-eyed kinds. I hate the nonsense about certain flowers being florist's flowers, and any not coming up to that definition being regarded as almost worthless; if we all went by the florist's rules we should not have the grand, highly-coloured Polyanthuses raised by Mr. Dean and Mr. Ware. To raise one's own strain of Primroses, begin with the mauve variety and the deep crimson known as *Primula auriculæflora*, and the most distinct of Mr. Dean's named seedlings. I shall never forget seeing, for the first time, Mr. Dean's Primroses at Bedford, near Feltham station. It is an easy journey from London, and those who think they have fine seedlings of their own would be astonished at the rich colours of the Bedford varieties. In crossing Primroses, the influence of the male pollen is very striking. In such plants as I have hybridized I generally find that the female influences the seedlings most; but here the case is reversed. I crossed a white Primrose with my finest coloured varieties, hoping thereby to raise pale but pure tones of pink, lilac, and so forth. I had only one white out of forty seedlings; all the rest are even richer and purer in colour than their male parents. The seed was sown in July in deep saucers, full of turf and Cocoa-nut fibre well mixed; they bloomed the following spring, and were then put on the shady side of a fence; the crowns grew all the summer and began to throw up flowers at the end of October. They are now in full bloom, and I have just taken them into the greenhouse; they are certainly more beautiful than Chinese Primulas, and are much easier to manage. The great secret as regards getting hybrid Polyanthuses and Primroses to bloom during the winter is to place fresh soil round the crowns as soon as the old leaves are dead, and to keep them moist during the dog days. I agree with Mr. Dean in thinking the mauve Primrose more than a variety of the common yellow Primrose, but I differ from him respecting the sowing of seed; he thinks it should be kept a year, the seed thereby coming up more regularly: I hold, on the contrary, that it should be sown as soon as it is ripe and kept under glass. I find that in this way the seed germinates with greater certainty and better than if kept a year; moreover, it is a manifest advantage to obtain flowering plants in less than a year from the time when the seed is gathered. Those who know the excitement attending the raising hybrid seedlings will appreciate this. I have, side by side, two boxes of Primrose seed sown on the same day—one full of fine young seedlings from seed sown as soon as it was ripe, the other of Mr. Dean's seed, with hardly any leaves yet showing. I have no doubt whatever that *Primula cortusoides amoena* will seed if crossed with Polyanthus pollen. What does Colonel Trevor Clarke mean by saying that there is no such thing as a white Primrose, and that all white Primroses are Polyanthuses? I understood him to this effect, but I have never had the opportunity of asking him about it afterwards. I have found white Primroses growing wild among the yellow ones. The mauve variety is one of the grandest plants for an outside window box with which I am acquainted; if grown in the shade in the summer it will flower freely during the winter and early spring.

Bingham.

FRANK MILES.

CROCUS EDGINGS.

My line of permanently-planted Crocuses is just now in full bloom in my garden, and when the sun shines the flowers open their petals to the utmost, and form a charming floral rainbow, for the line is crescent-shaped, and it serves as a margin to a mixed border in which *Roses* and other plants play an important part during summer. The bulbs were planted four years ago; a trench was dug out 1 ft. in depth next the Grass; at the bottom were placed 4 in. of fibry turf, and in this 2 in. of leaf-mould. The bulbs were planted in October, pressed firmly into the leaf-soil, and then covered with sand; the soil was then replaced, and the whole trodden firmly down. The first year I had some fine blooms, and the second and succeeding years a profusion of them. This is the way in which Crocuses should be treated, for they bloom earlier, freer, and much finer than when planted each autumn and lifted in the spring. In planting my row of bulbs I kept in view a continuation of flowers and a proper blending of colours. To insure blossoms in October I made use of a few bulbs of the autumn-blooming *Crocus speciosus*, with here and there a bulb or two of *Celchicum autumnale* and *Crocus Imperati*. The rich blue-purple of *C. speciosus* may be seen in October, and is succeeded by the *Colchicum*. In February *C. Imperati* appears, and is quickly followed by *C. biflorus*, white pencilled with black, and the golden *C. reticulatus*. I had nothing beyond these two till the warm sunny days of last week set in, and then there sprung up as if by magic the blossoms of some of the finer varieties of *Crocus vernus*, such as the Large Yellow, Sir Walter Scott, delicately pencilled with violet stripes; *Pride of Albion*, a remarkably fine, heavy-striped variety; and *Princess of Wales*, also a beautiful pale striped variety. Up to this time none of the purple kinds, such as *Ne Plus Ultra*, *David Rizzio*, and Sir John Franklin, have flowered, but it will not be very long before they do; and with them I shall have, for the sake of the blue tints which they supply, *Scilla bifolia* and *S. sibirica*. The presence of a margin of Crocuses never interferes with the summer occupants of the bed, and on all occasions when it is dug the Crocuses are left undisturbed. Early in autumn the soil is carefully removed to the depth of 2 in. or 3 in., and some spent manure sufficiently dry to be pulverised is placed in the trench to act as a top-dressing, and the removed soil is replaced. During summer two or three good soakings of liquid manure are given, with a good result. It is sometimes urged against the use of Crocuses in this way that the foliage has a littery appearance in spring, but the grievance must be regarded as a very small one. In the case of all permanently planted lines of Crocuses the bulbs should be lifted and replanted every six years or so. This is necessary in order that the soil in which they are growing may be renovated, and also for the purpose of keeping the bulbs low down in the soil.

D.

ANTIRRHINUM TOM THUMB.

LAST spring I had a collection of Tom Thumb Antirrhinums from Messrs. Veitch in eight different colours, and very dwarf, distinct, and beautiful they were. Some of the flowers were striped, others bleached in various forms and colours; but all were good, and, as a rule, the distinct colours were fairly true, which is more than can be said of all packets of seeds marked distinct. Everybody who saw the blooms admired them, and towards the autumn, when nearly all other outdoor plants were shorn of their beauty, the Antirrhinums seemed to improve, and continued flowering till the end of November. Seeds, sown during the next fortnight or three weeks in a gentle heat, when large enough pricked off into boxes, brought on for a time in a close, cool frame, afterwards hardened off and planted out in May, will come into bloom by the end of June, and continue flowering till late in autumn. Here and there one may be found that will grow rather taller than the rest, but these can easily be picked out when the plants are taken from the boxes, as by that time they will have developed their true character. If planted about 6 in. apart, an effective bed will be the result, and a new and pleasing feature may be given to it by planting seedling plants of the *Acacia lepantha* from 2 ft. to 3 ft. apart amongst the Antirrhinums; and if a bread band or verge of the variegated *Mesembryanthemum* be added, it will impart a neat finish to the whole. With beds of this character there is not much labour or care required, and they continue to improve till long after the usual bedding plants are fit for removal. The *Acacia* is very elegant, and takes off the flatness of the dwarfier plants, and the light and shade that seem to play amongst its light, feathery branches, bring out and improve the effect of the Antirrhinums. If the *Acacias* be sown now, and brought on in a moderate heat, they will be large enough to plant out by the usual time, but no time should be lost. The Antirrhinums, being hardy plants, may of course be sown in the open air, but if so, they will not flower till late in the year, and will consequently not be so useful this season.

E. HODDAY.

EFFECT OF THE WINTER ON VEGETATION.*

HITHERTO the winter has been a somewhat remarkable one, being characterized by wind and rain in excess, with comparatively little snow and frost, particularly about Edinburgh. The first snowfall, and perhaps the heaviest, was on November 8 and 9, and it did a vast amount of injury at the time by breaking down branches and damaging the bark of many deciduous and evergreen trees throughout Scotland, such as Oaks, Beeches, Elms, Silver Firs, and Spruces. This, and also subsequent falls, rapidly disappeared, although snow up to this time in this locality has been less than usual; rain has, however, fallen in greater abundance during the last five months than it has been known to do in this district during the same period for many years. So much has this been the case that all low and level grounds are completely saturated with water, and therefore very much against the flowering of many of the hardy spring bulbs. Snowdrops, for instance, at this particular time (Jan. 31) used to be abundantly in bloom, not only on elevated grounds, but all over the level garden lawns; now they are only to be seen partially in flower on raised and sloping banks where the ground is somewhat dry, while those on flat lawns and in low, damp situations, are scarcely appearing above the surface of the soil. This dampness may also account for the backwardness apparent in the flowers of the Crimean Snowdrop (*Galanthus plicatus*), *Leucojum vernum*, *Crocus susianus*, and even the varieties of *Crocus vernus*, all of which were in flower during the month of January last year, when the weather was colder. I am not prepared to say how long it is since we had such an amount of moisture during any one winter, but this I do know, that for the last fifty years we have never been troubled with water in our garden stockholes till last month, necessitating pits to be sunk in them and otherwise much labour in getting it out. What effect this excess of moisture will ultimately have on the roots of many shrubby and herbaceous plants growing near the surface it is difficult to say.

Owing to the mildness of the weather, many of our autumn plants have continued more or less in flower throughout the winter—kiuds in all probability which would not have been in bloom during an ordinary severe one. Among plants that have been in flower, may be named Primroses, Polyanthuses, *Gentiana acaulis*, *Veronica rupestris*, *Lithospermum fruticosum*, *Potentilla alba*, *Iberis*, *Aubrietia*, Wallflowers, &c.; while the various species of Christmas Rose have been remarkably fine, as well as the Winter Heliotrope (*Tussilago fragrans*), *Sternbergia lutea*, and *Crocus Imperati*, both the latter growing on high parts of the rock garden; *Erica carnea alba*, *Jasminum nudiflorum*, *Garrya elliptica*, and the Laurustians, have also been finely in blossom. The flowers of the common Hazel have been particularly abundant throughout the month, and if no frost should occur, a full crop of Hazel Nuts may be confidently looked for in autumn.

From the selected list of forty-two plants whose flowering has been annually recorded during the last twenty-seven years, four species only flowered during January; while eleven species of this number were noted during the same month last year.

	1877.	1876.
<i>Corylus Avellana</i>	January 1 —	January 14
<i>Tussilago fragrans</i>	" 3 —	" 12
<i>Hepatica triloba</i>	" 8 —	" 12
<i>Galanthus nivalis</i>	" 15 —	" 16

Besides herbaceous plants there are also several other shrubby species which are usually noted as being in bloom in the open air at this particular time, but which are still considerably behind. Of these may be mentioned the *Daphne Mezereum*, *Rhododendron atrovirens*, *R. Nobleanum*, and *Cornus Mas.*, but whether this arises from the sunless, wet autumn, or the want of the necessary amount of frost to mature them for early blooming, it is difficult to say, probably both combined.

To the meteorological tables which I have for the last twenty-two years prepared, showing the amount of frost during each month from October till April inclusive, I have to add the following observations:—In October 1876 we did not record a single degree of frost, notwithstanding that 352° were registered during the united October months for the last

twenty-two years. The lowest markings were in 1856, 1857, and 1862, when 3° only were indicated during each October month, while the highest was in 1859, when 56° of frost were registered. The lowest markings during the month of October, 1876, were on the 2nd, 23rd, 25th, 26th, 27th, and 31st, when 37°, 37°, 36°, 37°, 33°, and 35° were indicated, while the highest morning temperatures were on the 7th, 8th, 9th, 17th, 18th, and 19th, indicating respectively 55°, 53°, 50°, 50°, and 50°. During the month of November, 1876, the thermometer was thirteen times at or below freezing point, indicating collectively 82°, being 2° more than was noticed the previous year; the lowest markings being on the mornings of the 7th, 8th, 10th, 11th, 29th, and 30th, indicating 266°, 26°, 20°, 22°, 23°, and 25°, while the highest morning temperatures were on the 3rd, 4th, 5th, 17th, 18th, and 19th, indicating 45°, 45°, 46°, 45°, 42°, and 43°. During the month of December, 1876, the thermometer was twelve times at or below the freezing point, indicating collectively 43°, while the corresponding month last year indicated 81°; the lowest temperature being on the mornings of the 1st, 13th, 23rd, 24th, 26th, and 27th, indicating 29°, 25°, 24°, 26°, 27°, and 27°, while the highest morning readings were on the 2nd, 5th, 6th, 7th, 10th, and 11th, indicating respectively 42°, 43°, 44°, 45°, 43°, and 43°. In January last the thermometer was sixteen times at or below the freezing point, indicating collectively 73°, while 103° were registered during the same month last year. The lowest markings during January were on the mornings of the 2nd, 3rd, 12th, 15th, 22nd, and 23rd, indicating 20°, 18°, 23°, 27°, 26°, and 28°, while the highest morning temperatures were on the 8th, 9th, 11th, 19th, 20th, and 28th, indicating 40°, 37°, 37°, 38°, 39°, and 37°.

Rocky Mountain Columbine (*Aquilegia cœrulea*).—The plant, my mother's drawing of which was so well figured in THE GARDEN (see page 90), I grew from seed supplied by Mr. Thompson, of Ipswich, to whom we are indebted for introducing this lovely 'gem into English gardens. I would as soon leave a noble Hybrid Lily to the world with the certainty of its giving unending delight to millions of people in future ages as be revered for a Raphael, or sung for ever as Handel: so the man who introduced this Columbine may end his life happily. Its culture is not difficult. Sow the seed directly it is ripe: the seedlings come up quickly and with certainty. Prick them out into slate-bottomed boxes as soon as they are large enough to handle, they will all flower the second year; seedlings sown last February I expect to bloom this June, and amongst them will doubtless be found many varieties. Mr. Ware has some interesting crosses with the yellow Columbine, half-blue and half-creamy yellow. I hope to flower this summer the new white variety of this blue *Aquilegia*. Some blooms of the normal type measured 3½ in. across.—FRANK MILES, *Bingham, Notts.*

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Showy Heron's-bill (*Erodium Manescavi*).—This has been in bloom here ever since the beginning of July, and is still continuing to open its flowers, which are something like those of a show *Perlargonium*. This *Erodium* grows about 2 ft. high, has deeply lacinated leaves, and is a plant for everybody.—FRANK MILES, *Bingham.*

Verbenas treated as Annuals.—Last year a suggestion was made in THE GARDEN to treat Verbenas as hardy annuals, sowing the seed in a bed of prepared soil, and thinning out the seedlings in due course. I adopted the suggestion and failed to rear a single plant! What has been the experience of others? Was I to blame, or the method?—H. M.

Lonicera fragrantissima at Killakee.—This Honeysuckle, trained to a wall here, blooms beautifully every year; and I find its sweet-scented white flowers very useful in a cut state. It has been in bloom since the middle of January, and it is still covered with flowers and buds. The weather does not hurt it in the least. Last season I cut flowers from it when the ground was covered with snow.—T. O'ROURKE.

Clematis cirrhosa angustifolia.—This old but nevertheless little-known plant has lately been in full bloom on walls in the open air. It is an abundant flowerer, the blossoms being white on the outside and streaked with purple inside; it also produces leaves along with its flowers, a circumstance which renders it doubly attractive. This *Clematis* deserves extensive cultivation, as it blooms from December until March without the slightest protection.—W. H. G.

Geranium armenum.—This is more beautiful than any of the hardy Geraniums with which I am acquainted. It grows about 2½ ft. high, and lasts in bloom for a long time: its large round flowers are of a rich warm purple something of the colour of Loosetrife, with a deep crimson centre. I first obtained it from Messrs. Backhouse, of York, under another name; but it is now to be had of most of the nurserymen who make a speciality of hardy plants.—FRANK MILES, *Bingham.*

* Read before the Botanical Society of Edinburgh, on Feb. 8, by Mr. J. Mc'Nab.

THE FRUIT GARDEN.

PEACH CULTURE IN MARYLAND AND DELAWARE.

If any one will examine a map of the United States, he will find a long narrow strip of land bounded on the west by the Chesapeake Bay and on the east by the Delaware Bay and the Atlantic Ocean. This peninsula is nearly 180 miles long and from 20 to 50 miles wide, and comprises nearly the whole of the small State of Delaware, two counties of Virginia, and what is known to us as the eastern shore of Maryland; not only is it nearly surrounded by salt water, but many small rivers and sounds indent the whole peninsula, and I do not know a tract of land of the same size that has such fine water communication, it being stated that there is not a farm that is over 10 miles from navigable water. The vicinity of so much water gives the climate a mildness not found in the same latitude in the interior. The whole land is no doubt a very late upheaval, and at no great length of time formed a part of the ocean bed, large beds of oyster shells and marl being frequently found. The land is quite free from rocks and stones, and perfectly level, which renders it easy of culture. It was an early settlement, and under the old slave régime produced the finest Wheat and corn, and all kinds of fruits and vegetables in the greatest abundance.

But it was not to describe the natural advantages of this tract of land (advantages which have long ago gained for it the name of the Garden of Maryland, Virginia, and the neighbouring States), but to give a slight description of the culture and preserving of the Peaches, which cover thousands of acres of ground, and give occupation to thousands of men, women, and children. It has been famed for its Peaches from time immemorial, and has long supplied the cities of Baltimore and Philadelphia, and the surrounding villages with this fine fruit. But the fast freight trains, the canning process, and the demand in the newly-settled West has given an impetus to Peach planting which has made it a great industry. I have not at hand the statistics for 1876, but in 1875 there were shipped by rail and steamboat over 8,000,000 baskets of Peaches, exclusive of those sent by small sailing vessels, canned or used on the farms, or distilled into Peach brandy. As these baskets each contain 2 pecks, it will be easy to imagine what large facilities must be provided for the transport of such a quantity in so short a time as from the last of July till the first of October.* Well-ventilated cars are built expressly for the transportation of Peaches, and the boxes are placed so that a free circulation of air is kept up between the tiers. On arrival at Baltimore or Philadelphia many cars are dispatched northwards to New York, Boston, Portland, and as far west as Chicago and the intermediate cities and larger towns. I have made a calculation that the packers of canned fruit use at least 30 per cent. of the Peaches, and as they need the firmest and best fruit for their purposes, they give the highest prices. The ripe fruit is sold for immediate uses, and often at much lower figures. I think that the average price for prime Peaches last summer (1875) was about 4s. a box of 4 pecks, and ranging from that price down as low as 1s. per box, according to condition, &c. Good Peaches, but too soft to can, were sold retail in the streets at 10d. per peck. The fruit is put up in 2-lb. and 3-lb. cans, and I should think a bushel of Peaches would fill eighteen 2-lb. cans. The process of canning Peaches is so simple that the majority of cultivators put up enough for their home consumption.

Any land that will produce from 20 bushels to 25 bushels of Wheat to the acre will do for Peaches. Most growers now raise and bud their own trees. The stones are put in a hot-bed, and as soon as the kernels have started and commenced to shoot, if the weather be warm enough, they are placed in nursery rows 1 ft. apart. By September they will be large enough to bud, and at the end of the second year the trees will be from 3 ft. to 4 ft. high, and large enough to plant out. They are generally planted about 20 ft. each way, taking over 100 to the acre. The trees commence to bear the third year after planting out, are in their prime about the sixth, and last about twelve years. It was customary to plant Maize between the rows until the trees interfered, but now good fruit-growers

work the orchard as a crop, keeping it clear of weeds and Grass. The tall growth of the Maize no doubt interfered with the progress of the trees, and the immediate gain proved a loss in the end. Even after the trees come into fruiting the ground is kept clean, as a Grassy orchard soon runs out. In fruitful years immense quantities of props are required, in fact, to such an extent as to make them quite an item of expense. Large trees have been known to bear 5 or 6 bushels, but two and three boxes to a tree is a nearer average. Farms having 100, 200, or 300 acres in Peaches are common; Col. Wilkins, of Kent, has over 1000 acres, and has a steamboat of his own to convey his fruit to market. Many cultivators have distilleries and turn their specked or small fruit into brandy. It takes from three to five bushels of Peaches to make a gallon of brandy. If the season be warm and dry, with only moderate rains, the fruit is less watery, and contains more saccharine matter than in wet seasons. Very few of the varieties known in England are cultivated here. Early York, Grosse Mignonne, William the Fourth, and a few French kinds are sometimes met with. Some of Mr. Rivers' varieties are now attracting attention on account of their early maturity, but, as a general rule, American seedlings suit better, and so easily are excellent varieties grown from seed that new ones are annually making their appearance. The principal drawbacks to the cultivation of the Peach on this peninsula are late frosts and sleet coming when the trees are in blossom or flower-buds much swollen. They are also troubled with a worm that bores into the tree just at the ground, and which has to be destroyed by running a wire into the hole. The Peach thrives best near tidal water. With regard to the quality of the fruit, I have never met with superior, and rarely the equal, of the Maryland Peaches in any part of the world. A great part of the fruit, which is only of medium quality, would be prime if some attention were paid to thinning it when small, the low price at which it is sold not permitting the employment of skilled labour to thin the fruit at the proper season. But the high price which fancy fruit commands in the markets of our larger cities is attracting the attention of the fruit-raisers. Some extra fine fruit for the fancy fruit-stands brought as much as 8s. per box at the time the best canning fruit was worth only 4s., but only a moderate quantity of such fruit could be sold. An attempt was made last summer to ship a lot of Peaches to Liverpool, though owing to want of ice or some other cause they all rotted; but I believe that all difficulties for the safe transport of fruit will be overcome ere long. The Peach Association of this peninsula reckon by the number of baskets of half a bushel each, though a great part is sent to market in boxes containing 1 bushel each. The pickers are paid so much a basket.

CHAS. H. SNOW.

Setting Muscat Grapes.—Many different methods have been resorted to to assist setting in the case of Muscat Grapes, such as the use of the camel's-hair pencil, rabbit's tail, and drawing the dry hand over the bunch after it had been drawn over that of a Ham-burgh or some other free-setting sort. None of these aids to setting are, however, of any use unless attention be paid to the thorough ripening of the wood the previous autumn, and to keeping up a healthy root-action while the Vines are in flower. Muscats being naturally free growers and liable to make gross wood difficult to mature, should always be planted in a well-drained border, in a compost consisting of good, strong, fibrous loam, without any mixture of manure. The latter should only be supplied to the roots in a liquid state whenever the Vines require it. Muscats, too, require plenty of water during the growing season. If these points be attended to and a genial atmosphere of from 70° to 75° maintained when the Vines are in bloom, a crop may be depended on.—JAMES SMITH, *Waterdale*.

How to destroy Moss on Fruit Trees.—Your correspondent "J." (see p. 59) wishes to know the best way of destroying Moss and Lichen on fruit trees. I have found sprinkling them with fresh powdered lime on a damp, not a wet day (on a dry day the trees should be syringed), will kill Moss without injuring the trees.—W. W.

Late Winter Pears.—Ne Plus Meuris, Glou Morceau, and Easter Beurre have one and all been unusually good with me this season; the fruit of Glou Morceau, grown on cordons on south walls had skins like gold, and the flavour was excellent, equal to that of Bergamotte d'Espéren, and far better than Winter Nelis here.—R. GILBERT, *Burghley*.

*This account is official (1875); it was by far the largest crop ever raised.

HARDY FLOWERS IN LONDON GARDENS.

SPRING-FLOWERING bulbs, which are unusually forward this season, are, owing to the few sunny days which we have had, both gay and attractive. The Crocus beds in Mr. Barr's grounds at Tooting exhibit a profusion of rich and variously-coloured blooms, and flowers of the single blue and white and double red Hepaticas sparkle under a group of Poplar trees near which they are planted. In this position, too, Polyanthus Golden Plover is a mass of large, bright yellow blossoms, and the Alpine Windflower (*Anemone alpina*), to which we referred a few weeks back, is still in excellent condition on raised beds.



Helleborus niger.

The Scarlet Windflower (*Anemone fulgens*) is just opening its brilliant crimson-scarlet blossoms, thrown well up above dense masses of lively green foliage; and *Anemone blanda* is furnished with an abundance of large sky-blue flowers. *Scilla sibirica* and *S. biflora* are still very beautiful in Mr. Parker's nursery, where are also little clumps of a *Scilla* quite distinct from other Squills; its flowers are light blue, and are in denser masses than those of other kinds. Established plants of *Iris stylosa*, too, are flowering freely, and when these become plentiful they will no doubt be extensively cultivated: few hardy plants will be found more useful than this for furnishing a supply of beautiful sky-blue blossoms for floral decorations



Helleborus purpurascens.

during the early spring months, and they last in water for a long time in good condition. Beds of *Iris reticulata purpurea* are likewise just now thickly studded with fine, dark-purple, yellow-striped blooms at Tottenham and Tooting, and plants of *Cyclamen Atkinsi*, growing among the Grass under trees in warm situations, are more beautiful now than they have been all the season. *Sisyrinchium grandiflorum* and *S. album* are full of deep purple and white blossoms with dark golden anthers in Ware's nursery, and beds of the Snowdrops (*Galanthus Imperati* and *G. plicatus*) are covered with flowers. The Great Pilewort (*Ficaria grandiflora*), too, is just now very showy, its large glistening yellow blossoms being borne in great numbers. For growing under trees and shrubs this plant deserves extensive cultivation, for where many other plants fail in such positions, this will invariably flourish and flower freely

for several months in the spring; and the same may be said of the golden-flowered Winter Aconite (*Eranthis hyemalis*). *Saxifraga rubra*, *ciliaris*, and *Ingelrestis* are also plants that are now very attractive in the Tottenham nurseries, their rose-coloured blossoms being produced in large compact heads, and surrounded by ample, stiff, bronzy-green leaves. Here, too, the Rosy Rock Cress (*Arabis blepharophylla*) is producing its showy rosy-coloured blossoms on raised beds in abundance, and the Lungwort (*Pulmonaria affinis*) is loaded with bluish-pink, Cowslip-like flowers. The Spring Starwort (*Triteleia uniflora*), notwithstanding that it has been covered with bloom for several months past, is still bearing quantities of beautiful lilac-striped flowers. The bright blossoms of a yellow Wall-flower are now opening in quantities, and fill the air with their fragrance. The purple flowers of *Rhododendron præcox* are also becoming very attractive; *Gentiana acaulis*, too, is, as has been the case all through the winter, bearing numbers of its large, deep blue, vase-like flowers from amidst a thick carpet of glossy green leaves. *Frimula denticulata*, should the weather be favourable, will soon be at its best; but the continuous heavy rains which we have lately experienced have made great havoc amongst hardy perennials, as well as amongst bulbous-rooted plants of every description. Nearly all kinds of Lilies have started into active growth, and if not in some way protected, will be liable to be cut down by spring frosts



Primula denticulata.



Primula vulgaris.

should they set in with anything like severity. The Giant Christmas Rose (*Helleborus lividus*) is pushing up its massive bloom-buds, and will shortly be very effective; when planted in open places in shrubberies or in a raised position on mounds, this plant is very conspicuous when in flower. Other Christmas Roses are also in full bloom, and *Iberis semperflorans* is this season flowering earlier than usual on account of the mild winter which we have had. S.

English Irises.—Is there anything more lovely in this lovely world of ours than a bed of *Iris anglica*? Go to Tottenham about the middle of June and see all the describable and indescribable colours blended together in a bed of these Irises. I think the most beautiful variety of all is Bronze Queen, and I know of no flowers more inexpensive in proportion to their beauty. They should be planted in sandy soil on a raised bed early in September. Underneath the sand put quantities of rich vegetable matter or thoroughly decayed cow manure. Perhaps it is well these wonderful beauties do not last long enough to put us out of patience with flowers of a mere enduring kind.—F. M.

Campanula coronata alba and other Bell-flowers.—A plant for all time and for all gardens is *Campanula coronata alba*, than which no hardy plant is more wonderful, with its white calyx looking like a white reflection of the greater flower. There are, however, many other Bell-flowers to be revered and rejoiced over. *C. Hosti* is a fine dark-coloured and stronger-growing variety of the common Hairbell; the white variety, *C. Hosti alba*, is far finer than the white variety of *C. rotundifolia*, though that is a first-rate border plant. *C. lactiflora* is delicate in colour and stately in growth; *C. turbinata* is a fine dwarf plant for the edge of a border; *C. pulla*, when growing well in moist, turfy loam, is thoroughly beautiful and very dwarf.—FRANK MILES, Bingham.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Stoves.—There are many subjects here that will now want attention in the matter of re-potting. It is always advisable to get on with this work as soon as the plants are ready for it, as by so doing time is saved later on; it will be well to give the majority of the ornamental-leaved varieties a shift. Crotons need more drainage than most hard-wooded plants; they should also have a good layer of fibrous material put over the crocks. If the drainage be not very good the soil soon gets too wet, as these plants want a deal of syringing to keep down yellow thrips where it exists. Bertolonias and Fittonias are beautiful small plants well worth cultivation; the Fittonias especially will succeed in places where few plants will prosper. It is time now to start Caladiums; they should be taken out of the old soil and re-potted in fresh, consisting of good loam to which has been added a little sand and some leaf-mould. Where desirable, they can be increased by dividing the bulbs, leaving to each piece part of the crown with buds. For all decorative purposes plants of a comparatively small size will be found more useful; put them in heat as soon as they are potted. Where sufficient space can be afforded for its full development, *Medinilla magnifica* is a fine plant for decoration; the temperature of an intermediate-house, say 50° by night, will be the best for it at the present time; if it be kept too hot it will be likely to cause numbers of the flowers to drop, neither should it have as much moisture in the atmosphere as many stove subjects require. Plants that were ripened well in the autumn will break out and bloom from the back wood as well as from the points of the shoots. Those who are fond of strange-looking flowers will do well to give *Aristolochias* a place; they grow rapidly, and can be had in a blooming state in twelve months from the time of the cuttings being struck, and they do not need much care. Plants that are in little pots ought to have a shift; they may have 6 in. or 8 in. more room; pot in good loam, to which add some leaf-mould and sand; they need a liberal supply of water; syringe every day as they are liable to the attacks of red spider if allowed to become too dry overhead. Their flowers show to advantage trained over a path, in which way they can be grown; or the shoots may be trained round a trellis, taking care to keep the points higher than the other parts; if this be not done they will stop and break out into fresh growth, which generally is not desirable if the plants be not weak and so need strengthening.

Bedding Plants.—Attend diligently to the propagation of these. If there be a scarcity of autumn-struck *Pelargoniums* strong shoots taken off in one good length and put in a little heat will strike well, and become fair-sized plants by bedding-out time. Cuttings struck in the autumn should be potted off and encouraged to grow by giving them a night temperature of 45° or so.

Ferns.—A commencement should be made in potting Ferns, for if this operation be deferred too long, the young growth gets checked and becomes deformed. Whether we take into account their beauty, their value, or their unsurpassed elegance for mixing with cut flowers, *Gleichenias* have few equals and no superiors. Fully matured fronds when well supplied with water, will last in a cut state for an almost incredible time; of course the young immature fronds will, as in the case of other Ferns, shrivel very soon. It is not advisable to cut plants that are small; but they are not very difficult to grow, and when they attain a good size, which they will in a comparatively short time, there need be no fear of cutting to a reasonable extent. In getting in young plants, it is necessary to be extremely careful that they are perfectly free from both scale and mealy bug, for if either of these pests exist on them, they cannot be grown in a way to show their true character. Whilst the plants are small, the insects may, by unceasing attention, be kept down; but as they get larger, the sponge and brush, however carefully applied, prevents their progress satisfactorily. If healthy plants be treated as hereafter recommended, they will grow quickly. The soil in which they are grown ought to consist of five parts of the best fibrous peat broken into pieces about the size of hens' eggs, one part clean sand, and one part coal cinders about the size of Acorns. As they have creeping rhizomes that will extend a long way in all directions, broad and somewhat shallow pans are better than deep pots in which to grow them; these, according to the size of the plants, should be filled to within from 6 in. to 10 in. of the rim with drainage, pressing the soil moderately firm. They must not be syringed overhead, but the roots need a good supply of water; they succeed best in a drier atmosphere than that usually allotted to many Ferns. Let them be placed where there is plenty of light and not far from the glass. They do not want to be kept very hot—from 45° to 50° night temperature in the winter, and 5° higher by day, will do, with 10° or 15° more in the summer, admitting a moderate amount of air and slightly shading them.

Solanums.—Where these are grown from seed it is quite time to commence sowing, or else the plants will not have time to form their berries and get them well coloured before winter. Sow the seeds either in pots or pans containing a mixture of two-thirds loam and one-third sifted leaf-mould and sand, putting some of the finest of the soil on the top. They will soon begin to grow, when they must have a place near the glass to keep them from drawing; directly they are of sufficient size to handle, put them singly in small pots.

Vineries and Peach-houses.—Those amateurs who have more than one Vinery may now start one, letting the temperature at the beginning be 50°, syringing the Vines morning and evening, and admitting air during the day. A house like this will be very serviceable for other subjects. If the Vines be young, do not tie them in their places till the shoots are 1 in. or 2 in. long; this treatment will encourage them to break freely at the bottom. Where Peaches are grown in houses with the assistance of fire-heat, they should be started now, keeping the night temperature at about 45°, and giving air in the middle of the day; close the lights in good time in the afternoon, and syringe the trees well. At no time must the house be permitted to get too hot. Be careful that the soil is moist down to the depth of the roots.

Frames.—The fermenting material as recommended for hot-beds will now be ready for making up. The length of time that the beds will retain their heat depends materially upon the position they occupy; they should be well sheltered from the wind, and so placed that they will receive every ray of sunshine; it is also important that there should be no water standing about them, as this has a great tendency to cool them. If they must occupy an exposed situation, litter around the sides, shielded by means of wooden shutters from both rain and wind, will afford a good protection. It is better at first to make a bed for only a single-light frame, using this for Cucumbers till they are fit to plant out into a larger one. A bed made at this season ought to be 3 ft. longer and wider than the frame, and as it will settle one-half it should be 4 ft. 6 in. high when finished. Put on the frame directly and raise the lights at the back about 2 in. to allow the escape of the steam. As soon as the heat drops to 80° sow the seeds in little pots, two or three in each; when up, keep them near the glass, and in mild weather give air in the daytime, putting a double thickness of mats on at night. This bed will be useful for striking bedding plants. Beds for Potatoes and Carrots must not be so deep as for Cucumbers; 2½ ft. high will do well, on which place 10 in. of soil. The heat in the centre of the bed should not be more than 70° when the Potatoes are planted; let the rows be 14 in. apart, putting the tubers 4 in. deep and 10 in. asunder in the rows. Carrots ought to be sown in rows 8 in. apart, covering the seed with about ½ in. of soil.

Kitchen Garden.—Directly the first-sown Peas are above-ground, make another sowing of some other early kind; also put in some second early, such as *Collingford's Champion*, thereby securing successional crops. In those parts of the country which are unsuited for sowing Peas, Broad Beans, Radishes, &c., at the beginning of the year, it is time now to get them in.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

February 19.—Digging land for Cabbages and Cauliflowers. Sowing Sweet Peas. Sowing Fulmer's French Beans in pots in heat. Sowing Radishes out-of-doors. Sowing Radishes in frames planted with sprouted Potatoes. Sowing Onions and Leeks. Potting off plants of Oxalis; also *Chrysanthemums*, and placing them in cold pits. Shifting a few Ten-week Stocks into 6-in. pots. Pricking off *Viola cornuta*; also spring-sown Cauliflowers in frame. Going over East Indian Orchids, using Sphagnum, and *Lycaste*, giving the latter some peat, sand, and horse-droppings, and finishing with Moss. Putting in cuttings of *Bouvardias*, *Fuchsias*, scented *Pelargoniums*, *Verbenas*, and *Dracenas*. Getting baskets for conservatory planted with *Nemophila*, *Saponaria*, Musk, and *Creeping Jenny*. Planting Globe Artichokes for autumn bearing. Putting Feverfew into orchard-house. Putting up wall tree protections. Looking over *Phalaenopsis* for thrips, also over other Orchids on which insects are suspected to exist. Giving a top-dressing and more leaves to pot Vines. Manuring Rose garden beds; also Globe Artichokes. Earthing-up seedling Asparagus bed in order that it may be hoed over without injury to the crowns. Pruning espalier Apple trees. Stopping *Calceolarias*. Cleaning *Viola* and Asparagus beds. Keeping *Phalaenopsis*-house regularly at 70° at night. Raising East India-house to 70° at night; *Dendrobium*, 60°; *Cattleya*, 60°; *Lycaste*, 55°; and *Odontoglossum*.

house, 55°. Raising second Vinery to 58° at night, buds mostly burst, and some showing fruit. Keeping first Strawberry-house to 60° at night, and second Strawberry-house at from 55° to 58° at night. Plants ready for house decoration:—Tulips, Hyacinths, Narcissus, Lily of the Valley, Crocuses, Forget-me-Nots, Snowdrops, Cyclamens, Dentzias, Callas, Primulas, Ghent Azaleas, Lilacs, Rhododendrons, Mignonette, pink and scented Pelargoniums, Sweet Brier, and Gardenias.

Feb. 20.—Potting bulbs of *Lilium anatum* and plunging them in sand outside; also autumn-struck Verbenas and Dielytras for next year's forcing. Pricking off Capsicums. Putting in cuttings of Mangles' and Christine Pelargoniums; also some scented Verbenas and Heliotropes. Planting Potatoes under the protection of a south wall. Putting in another forcing of Asparagus. Putting Artemisias out-of-doors. Boxing Ageratums and putting them into Vinery. Putting young Mignonette on sunny side of pits. Examining Rose-tree ties and re-staking them where necessary.

Feb. 21.—Putting *Oncidium Lanceanum* into baskets drained with wood placed crosswise. Plunging *Centaurea* cuttings just put in into bottom-heat. Gathering French Beans in good condition from second sowing. Digging in manure amongst Gooseberry trees. Manuring Strawberries. Top-dressing Calceolarias with a good layer of cow manure; also Peach trees, Apricots, Pears, and autumn Raspberries. Putting soil consisting of four parts loam and two leaf-soil into Cucumber-pit. Hoeing among young crops.

Feb. 22.—Cleaning walks. Slightly increasing atmospheric moisture in Orchid-houses. Sowing Parsnips; also Radishes under the protection of a wall and netting them. Potting off Petunias and placing them in Peach-house; also Lobelias, Adiantums after division, Gazanias, and Achimenes. Pricking out more Lobelias, Celery, and Cauliflowers, the latter in a two-light box. Putting *Oncidium flexuosum* on Tree Ferns; also *Saccolabium* in baskets and hanging them up.

Feb. 23.—Sowing London White Cos and Malta Drumhead Lettuces; also Champion of England and Veitch's Perfection Peas, Broad Windsor Beans, Spinach, Dutch Forcing and Early Horn Carrots on south border, and Early Dutch Turnips. Shifting Golden Chain Pelargoniums into 6-in. and 8-in. pots, putting three or four plants into a pot, in order to make large plants, and placing them in heat on Vinery shelves. Potting Heliotropes. Filling all spare cases with Cauliflower plants. Planting Jerusalem Artichokes. Preparing a pit for first Melons. Making ready cradles for the protection of tender bedding plants. Starting third Peach-house at 55° by night.

Feb. 24.—Potting last autumn-struck Fuchsias into 32-sized pots for early flowering. Potting spare Cucumber plants in case of accident. Shaking out old Scarlet Pelargoniums and re-potting them. Re-potting or top-dressing (as may be necessary) the *Phalœnopsis*, using Sphagnum. Sending in the first Reinette du Canada Apples and Colmar Pears. Manuring Orchard. Clipping Ivy on walls. Thinning first Muscats.

Orchids.

It is desirable to have as many leading growths as possible to an Orchid, because the more leading growths a plant has the greater quantity of bloom it is capable of producing; but as Orchids, even in their native habitats, exhibit a tendency to continue their growth from that last made, rarely producing back breaks, unless in the case of a very large plant, or that of injury to the leading growth, or the rhizome between the pseudo-bulbs (of pseudo-bulbous kinds), it is the practice under cultivation to resort to artificial means to induce them to break back, and the present time is the best for performing the operation. With respect to *Aërides*, *Vandas*, *Saccolabium*, *Angrœcums*, &c., it is a common thing to see vigorous plants having several young ones at their bases which do not seem to grow so freely as could be desired, while the main stems grow vigorously; the fact is, that the main stem, which is essential to the offshoots at the base until they are strong enough to root and support themselves, afterwards takes a considerable portion of the nourishment which should be devoted to them. With such plants it is best when the young ones at the base begin to root, to cut a notch half-way through the stem at its base, and just above that point from which the offshoots spring; later in the season, after the young plants are well rooted and established, the severance should be completed at the same point. With plants of the class referred to it is often hazardous to attempt to produce back growth on a plant not showing signs of young growth at the bottom by making an incision in the main stem, but after the growth has been produced, it is very beneficial to do so. *Cattleyas*, *Lælias*, *Oncidium*, &c., having five or more pseudo-bulbs, may have a notch

cut half-way through the running stem between the pseudo-bulbs without waiting for any other sign of back growth than a plump eye in front of which to make the incision, care being always taken that not less than two pseudo-bulbs are left on each piece intended to be severed, and that the severance is not completed until the back growth has shown itself to be sufficiently strong. In this way large specimens of Orchids may be obtained which are known to be from one piece, and consequently bearing flowers exactly alike, a consideration which greatly enhances the value of a plant. Different plants of the same species of most Orchids, particularly *Cattleyas*, *Lælias*, and *Odontoglossums*, are so unlike each other in their flowers, that specimens made by putting a number of smaller plants together, generally present a motley appearance when in blossom, even if brought to flower at the same time, which can seldom be done.—

JAMES O'BRIEN.

Protecting Roses.

This winter being so mild, Roses in many places have started into full growth, and should frost occur, they will suffer more from it than most kinds of flowering shrubs. Those who have pruned their plants in autumn in such a season as this will have to take great care of them. Roses as a rule should not be pruned before March. Many of them have made young shoots from 2 in. to 3 in. long, and the old Monthly Rose is coming into bloom, and the question is—What is to be done if sharp frost sets in? My advice is, keep plenty of hay and straw bands in readiness, and dry litter, with which to cover the dwarf Roses, so as to thoroughly protect them. If this be not done, we may expect to lose a great many valuable specimens. On referring to weather records of past years, I find that when December and January have been very mild, we have generally had sharp weather at the end of February and early in March; therefore, there is nothing like being prepared for covering up at even the shortest notice. Frost is always most destructive to Roses when the sap is up, as it is this season. The branches frozen being full of sap, the vessels get ruptured, and great damage is the result.—G. II.

Miscellaneous Plants.

Auriculas in pots are now beginning to grow, and the buds are already beginning to show themselves in the axils of the leaves. The plants should still be kept pretty dry, and the surface soil occasionally stirred. In well-established plants there is the promise of a fine bloom. The choicer varieties of Carnations and Picotees are invariably wintered in pots; they are too precarious in constitution to remain out-of-doors all the winter. At this time of year the old leaves decay, and should be kept cut away with a pair of scissors, or the decay will sometimes extend to the stems and destroy the plants. In mild weather aphides will cluster about the points of the foliage, but dipped in a solution of Fowler's Insecticide they will soon be destroyed. Plenty of air is requisite to keep the plants stocky and robust. Double Daisies in beds now require looking after, as the worms sometimes raise them out of the soil, into which they should be pressed firmly; strong plants are already throwing up their flower-stems; the earliest a pretty mottled crimson variety named Little Gem. Plants of *Mimulus*, in pots, held over from last year, are beginning to grow; but they are apt to get much infested with deep green fly, and, the leaves fitting so close one above the other, it is difficult for the fumes of Tobacco to find their way to them. It is a good plan to make a solution of soft soap and sulphur in warm water, and dip the plant into it. Those who make a point of planting out strong Petunias early in summer, sow their seed in autumn, so as to have them well advanced in spring. The seed-pans should now be covered with young plants, which should be kept near the glass, but not in a too dry place; they should be shaded from sunlight, and the surface should be kept moist. Pelargoniums of the large-flowering, or show class, as they are termed, now require attention, as the plants potted in October are, owing to the mild weather, making active growth. They need a dry, cool, and airy position, and careful watering, not too much to induce a rapid sappy growth, or too little to cause a loss of leaves. The principal shoots, if too long, may be cut back 1 in. or so, which will cause the plants to break freely a month or so hence. The fancy varieties should be kept cool, but in a warmer atmosphere than the large-flowering varieties; they are more delicate, and at this time of the year should not be kept too moist at the roots. The zonal varieties which have been blooming through the winter require to be well looked after as regards watering in order to maintain a head of bloom. Single and double Primroses both in pots and in the open ground are growing fast and commencing to flower. One great advantage in having them in pots is that the flowers are protected from frost and rain, and they last much longer under glass; the more genial atmosphere makes the flowers of large size, which is another advantage. In the open ground vermin spoil the flowers. Polyanthuses in pots are also getting active, and require to be continually well watered.—D.

CYCLAMENS AND SUN-HEAT.

"CHRISTINE" does not say (see p. 106) what species of Cyclamen was seen by her in the neighbourhood of Athens, but probably it was *C. hederifolium* or one of its varieties, the growth and general habits of which are somewhat different from those of *C. persicum*, to which alone my remarks had reference. The Cyclamen may, as far as I am aware, be found growing naturally under very varied conditions, but whenever I have myself seen it in its native habitat, the corn has been well buried under the soil and well surrounded by herbage. I have found *C. europæum* in positions somewhat analogous to those occupied by our native Primrose, which, although enjoying a free circulation of air and abundant light, has its crown protected from hot weather by the herbage amongst which it grows. Thus placed, the roots of the Cyclamen strike down into the damp sub-soil and preserve their vitality, and the covering of soil is alone sufficient to protect the corn and crown, whence issue the new leaves and flower-buds, from the burning sun and drying air; consequently the vital parts of the plant are kept comparatively cool and moist, and are therefore insured against sudden vicissitudes of climate. Although apparently at rest, if examined during the summer Cyclamens will be found to be forming fresh growth underground, so that when the cooler season arrives they may push up strongly through the surface soil. The placing of the Cyclamen in a position where the root and bulb are fully exposed to a burning sun and an arid atmosphere appears to me to be as unnatural as it is useless. As "Christine" will observe, there is a wide difference between a plant standing in the open ground, where it enjoys a free and extensive root-run in a cool bottom soil, and a plant in a pot confined to a small portion of soil, upon which the sun has full play. Pot culture is more or less unnatural, and it is only by using judgment in warding off extremes that we are enabled to succeed in the culture of plants under such circumstances. Many plants which will endure, and even prefer, the full blaze of the summer sun when placed under natural conditions, must, if grown in pots, be afforded protection from excessive heat. In stating that exposure to strong solar warmth was foreign to the nature of the Cyclamen, I, of course, referred to the plant in its entirety, and not to the foliage alone. The peculiar manner in which, as soon as the seed is formed, the flower-stem commences to bend downwards, and eventually buries the seed-pod somewhat deeply in the soil, affords a convincing illustration that the plant naturally (so to speak) seems desirous of guarding itself against vicissitudes of climate; it is worthy of note, too, that if the flowers fail to set, the stalk will not bend towards the ground, but remain in its normal upright position.

JOHN CORNHILL.

Effect.

Bottom-heat Injurious to Camellias.—There is an important point mentioned in the excellent article on Camellia culture in your last issue (see p. 106), on which rather more stress might have been laid, and that is, the evil of trying to force the Camellia, especially by means of bottom-heat. I believe, that of the numbers of Camellias killed annually more die from this cause than from any other, except insufficient watering. When placed in heat quantities of fresh roots are formed, which, however, soon decay, leaving the foliage yellow and miserable, an appearance which it keeps all the season, and the following autumn the flower-buds, instead of expanding, turn brown and fall. Another idea suggested by reading the paper referred to is, that your correspondent gives no data by which a person ignorant of soils may know whether he can grow Camellias or not, and they will not grow in all soils, especially if they contain lime; the nature of a soil may be best known by the character of the vegetation growing upon it. The turf from a soil in which Rhododendrons, Azaleas, or Foxgloves, grow freely and vigorously will also answer for Camellias, if the instructions given on page 106 be carefully followed.—C. E. PEARSON, *Chilwell*.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Eurya latifolia variegata.—This, although not altogether new, is far from being as common as it deserves to be. Its close-growing, shrubby habit and handsome, striking foliage render it well adapted for the winter decoration of cool conservatories, where the scanty stock of flowers has to be set off by, and contrasted with, bright, handsome foliage.—E. HODDAY.

Myosotis dissitiflora in Pots.—Where spring flowers are in demand—and where are they not?—this beautiful Forget-me-not is indispensable. Any body with a greenhouse, or even a frame or a good light window, may be gladdened by its numerous miniature blue star-shaped flowers. The best way to grow it is to sow the seeds thinly on a partially shaded border about the end of August, and during the winter lift the strongest with balls of earth and pot them into 48-sized pots. Place them in a cold frame, ventilate freely, and water when necessary. In January move a few at a time into a warm light greenhouse.—E. HODDAY.

PLATE LXI.

THE FORGET-ME-NOTS.

(WITH A COLOURED FIGURE OF MYOSOTIS RUPICOLA).

Drawn by H. NOEL HUMPHREYS.

THE genus *Myosotis* is one that has long enjoyed a wide popularity under its more familiar and poetic English title the Forget-me-not. In the language of flowers it may be said to stand without a rival as regards the sentiment which beams forth from its bright blue blossoms; and in truth, setting aside all poetic fancies and the legendary lore with which the origin of the name is associated, it has an intrinsic beauty of its own which few plants possess. This will be admitted by every one who has seen—and who has not?—the masses of azure blossoms which fringe during the summer the margin of almost every streamlet, the produce of the Marsh Forget-me-not (*M. palustris*), one of the most widely distributed of our wild plants. Again, those whose rambles may have extended through the sylvan groves with which our mountains are clothed, in the glad months of May or June, must have been equally struck with the light, airy elegance that the sprays of the Wood Forget-me-not (*M. sylvatica*) assume—the former basking in the full sunshine of the long midsummer's day, the latter revelling in the partial shade which the fresh expanded foliage of the overhanging branches furnish. Then again, in the Scattered-flowered Forget-me-not (*M. dissitiflora*), we have one of those primary elements of beauty, in the absence of which our spring flower gardens would be robbed of one of their brightest features; here the true, fully developed azure colour of the flowers is preceded by a roseate blush. Familiar, however, and lovely as these are, we have in our Rock or Alpine Forget-me-not (*M. rupicola*), which is the subject of the annexed illustration—the gem of them all—a plant in which the maximum of beauty appears to be concentrated into the minimum of space—a characteristic, by the way, which is applicable to many of our Alpine plants. Here we have a plant scarcely exceeding 2 in. in height, whose dense flower-heads rise from a cushion of compactly-arranged, green leaves, each of which appears to be supported on a foot-stalk, owing to the blade of the leaf tapering somewhat narrowly down towards the base. The flowers are of a slightly darker tint of blue than any of the species just named; and when I apply the word "large" to them, it ought to be qualified by the assertion that they are large when compared with the size of the plant; added to this the beauty and richness of the blue is not a little enhanced by the golden eye which appears to lighten up each individual flower, and, while adding beauty to the mass, attracts the attention irresistibly to the individual details of which the mass is composed. The true *M. rupicola* is usually considered as synonymous with *M. alpestris*, and the latter with *M. suaveolens* of Waldstein and Kitaibel; doubtless the synonymy of the latter two is correct, but I have a strong opinion that the plant here figured is quite distinct, specifically speaking, from the *M. alpestris* of the Scotch mountains. The plant as found growing on the Micklefell, one of the highest of our Yorkshire hills, scarcely exceeds 1 in. to 2 in. in height, whereas the Scotch plant attains as much as 6 in.; moreover, the radical leaves in the latter are much more distinctly stalked, broader, and of a darker green. I may further add that my opinion on this matter is entirely confirmed by the distinctive habit the plants retain under cultivation; in the Yorkshire plant scarcely a trace of seminal variation presents itself, while, in the Scotch plant when raised from seed under the more generous treatment, which it experiences in garden culture, it is liable to increase both in vigour and stature so much so as almost to lead us to endorse De Candolle's and Koch's opinion that it is nothing more than an Alpine form of our Wood Forget-me-not. Be that as it may, the *Myosotis*, to which our attention is at present specially directed, as a rock plant is, when grown as Messrs. Backhouse grow it, exquisitely beautiful, and the rock-garden is its true position; as a rival to the *M. dissitiflora* of our flower gardens, its later period of blooming (May and June), its exceedingly dwarf habit, and its want of vigour, are all militating elements. In the rockery it should have a north aspect with perfect exposure, and its cultural success



MOUNTAIN FERRET MEADOWS, GLEN FERTICHA, IRELAND.

will be much more certain if with a mixture of ordinary loam and peat, a quantity of nodules of limestone be incorporated, to which geological formation it appears to have a special affinity.

The Azorean Forget-me-not (*M. azorica*) is a charming species, and unique in its semi-shrubby character. Some thirty years ago, when first introduced, it received a well-deserved recognition, and appeared without any difficulty to establish its claim to general, and I may add successful culture. Being a native of the extreme western islands of the Azores, as might be expected it proved too tender for outdoor culture, unless it might be in very exceptionally sheltered localities. The extreme beauty of its dark flowers of the richest indigo blue with a well-marked dash of purple in it as well—combined with the successional manner in which the flowering branches are produced, gave it a well-merited claim for indoor spring decoration; under these conditions it grew vigorously, whether raised from seed or by cuttings. From some cause or another, for which I could never account, it gradually disappeared. The debilitated condition of all the plants I have raised for some years past, however, seems to point to the possibility that they originated from immature and only half-ripened seed, a supposition in which I am in some measure confirmed by the fact that the seeds were extremely small, and altogether lacked that plump character which they used in olden times to possess. Possibly these remarks may be the means of bringing to mind its former beauty and popularity to those who have cultivated it, and rouse in them the wish to possess it once more. Surely there need be no difficulty in obtaining a supply of good seed from its native habitat. I may further add, that a variety called Imperatrice Elizabeth, and several others of Continental origin, lay claim to a parental relationship with this Azorean species.

JAMES C. NIVEN.

Hull Botanic Gardens.

The Double Poinsettia.—Anxiety to multiply this Poinsettia to the utmost has prevented me, like many others, from reaching perfection in the cultivation of this plant this year; I have, however, flowered it sufficiently well to discover its merits. Though no doubt like the common variety, the size, colour, and even the number of the floral leaves or bracts, will depend very much on the strength and vigour of the plants—these are the points, in addition to the multiplicity of the bracts, that recommend this new variety to cultivators. It is of a much deeper colour than the ordinary Poinsettia, and it continues more than double the length of time in bloom. I have had a head of the double kind in flower for two months, and the longer it continues in bloom the more beautiful it becomes. The colour is also much more vivid than that of the common variety growing in the same house. Naturally, too, or perhaps this may be the result of severe propagation, this new kind seems much later than the old type, a fact which, if established, will add to its value. I am of course aware that the time of flowering Poinsettias is a matter of treatment, and that they may be had in bloom from November to May; still, under ordinary treatment, the harvest of Poinsettia beauty is mostly reaped in December, and it will be a great gain if subjected to the same conditions, the new variety will continue its beauty all through January and February; the bracts, in fact, seem to form in succession rather than simultaneously, the bottom floral leaves getting well away and displaying a mass of striking colour before the upper bracts are well formed, and the under ones wait for the upper without either drooping or fading, until the plants present a series of perfect bracts of the most gorgeous colouring.—D. T. FISHER.

Shedding of Flowers in Rogieras.—Rogieras deserve all the praise bestowed on them (see p. 102), but the short duration of their flowers—their greatest drawback—should have been pointed out. These plants always remind me of a Laurustinus of a delicate pink colour. Their perfume is also of the sweetest; but unfortunately they neither last long on the plant nor off it. The bunch of flowers also falls to pieces almost as soon as cut. They are pretty for bouquets, but in that case little bunches should be made of the single flowers, in the same way as those of *Quisqualis indica*, a stove climber, with the same fault even more strongly developed, viz., the rapid shedding of its flowers. Treated as I have just mentioned, the Rogieras form charming materials for bouquets. *R. gratissima* is perhaps rather better than *R. amœna*, and forms a welcome addition to the flowering plants of the stove in January and February, a season when stove flowers are somewhat scarce.—D. T. F.

LILY BULBS.—II.

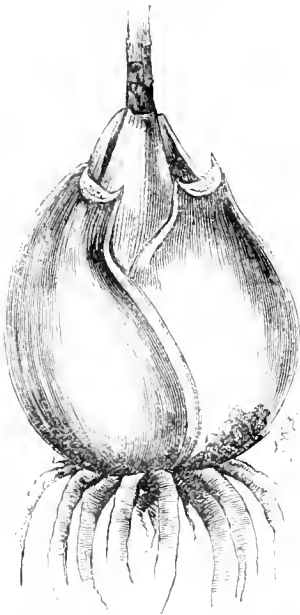
THE following remarks mainly relate to the underground growth of some of the Lilies now cultivated in our gardens; those who desire information respecting their stems, leaves, and flowers, are referred to Mr. J. G. Baker's "Revision of the Genera and Species of Tulipeæ," to which the Lilies belong, published in the "Linnean Society's Journal," vol. xiv., a translation of which, so far as it relates to the present genus *Lilium*, will be found in Vol. VII. of THE GARDEN, 1875, p. 297, accompanied by numerous reduced woodcut figures. In this paper I have also adopted Mr. Baker's arrangement and index to the species of *Lilium* originally published in the "Proceedings of the Royal Horticultural Society." If we could make ourselves perfectly certain as to which of the cultivated Lilies are wild species or types, and which have been produced by seminal variation and hybridism by the Japanese and Dutch cultivators, we should find the bulb structure of Lilies far more characteristic or tangible than at present, although even now the bulbs of Lilies are quite as well suited as aids to classification or arrangement of species as are the corms of Crocuses or Fritillarias. Speaking of Japanese Lily cultivators, it may not be generally known that Lilies and other typical plants (as Iris and *Prœnias*) have been cultivated and improved by particular families in Japan just as are Lilies, Hyacinths, Narcissi, and Tulips at present in Holland, only that this culture has been going on in Japan for generation after generation—one might almost add ages; its origin is lost in legends and mythical obscurity. If one could get at translations of Japanese and Chinese gardening and botanical literature, what a world of discovery in plant improvement would be opened up to us, and how much would some of the botanists, even of our own day, have to regret that they did not give the "inner Celestial" trade-growers more credit for their skill in originating and fixing sports and seminal varieties, if not sexual and vegetative hybrids! In referring to the characters of Lily bulbs, it must be owned that in some cases a great difference is observable between the bulbs of two apparently distinct types or species, but it is impossible to define the difference in words; and this brings me to a point on which I lay great stress, namely, that in figuring any plant the root-growth should in all cases be included in the drawing as worthy of equal consideration with the aboveground development of stem and leaves, especially as it is the foundation whence they spring into life and loveliness; and I feel sure if this practice were adopted in botanical works, many of the now common doubts and misunderstandings as to figures would be prevented. Individual bulbs of any species of Lily, like individual Apples or Pears, are very variable, and those who have many Lily bulbs through their hands are apt to form their ideal of the bulb of any given species from the bulk, taking note of the maximum and minimum variations in a manner of which their ideal bulb is a mean or average. There is, however, a right and a wrong method even in this apparently faultless style of estimating variable characters, for it is possible to imagine what the bulb of any species should be from extreme specimens, and to draw or write about it as though one had actually seen such an actual specimen. This source of error has been carefully guarded against, and although it is not to be expected that we have been fortunate enough to hit everybody's ideal of the bulb-growth of the species figured, still every figure has been carefully made from an actual bulb. Nor did I altogether trust to my own experience in the matter, since the selection of the type specimens in nearly all cases was made for me by Mr. G. F. Wilson, Dr. Wallace, Mr. Horseman, Mr. Bull, Mr. Barr, and other well-known Lily importers and cultivators. Not a scale has been added or sacrificed for artistic purposes, and in most cases the original sketches are reproduced of the natural size.

Sub-genus I.—Eulirion.

Perianth funnel-shaped, horizontal, or slightly drooping, its divisions broadest above the middle, spreading only towards the tip when fully expanded; filaments and style nearly straight.

1. *Lilium cordiflorum*.—The stately *L. cordiflorum* and *L. giganteum* (the latter now pretty generally grown in our gardens) are readily distinguished from all other Lilies by their broadly heart-shaped, Funkia-like leaves, the large thickened

bases of which become somewhat indurated and permanent, forming what may be called a bulb, but one essentially different in texture and general appearance from the bulbs of all other species included in this genus. *L. giganteum* is so similar to the Japanese *L. cordifolium* both in foliage and flower that I follow Mr. Baker in considering them merely forms of the same plant, a



1. *Lilium cordifolium* (Japan and China); half natural size; from cultivated bulb; colour, green and brown. [See p. 131.]

little varied perhaps by different climate, soil, and other conditions mainly dependent on geographical distribution. If all other characters fail, however, the plants are readily distinguished by their bulbs, which differ in several particulars, but like those of many other Lilies, more in general appearance than in describable characters. Mr. Baker describes the bulb of *L. cordifolium* as being "in every



1.* *L. giganteum* (India); one-third natural size; from a cultivated bulb; colour, brownish. [See p. 131.]

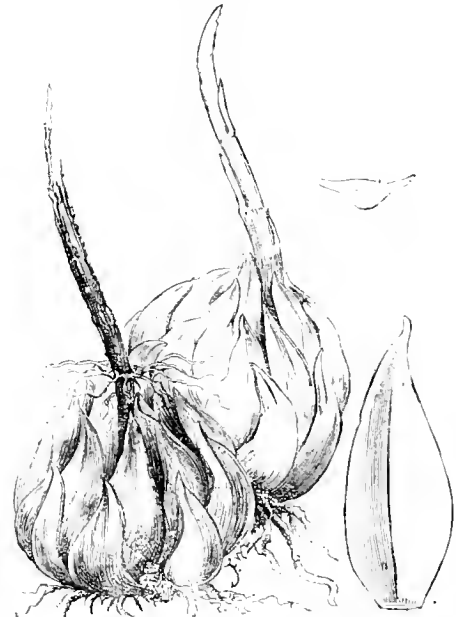
respect like that of *L. giganteum*, but smaller, and with thicker, more wrinkled, and less regular scales." I also find the bulbs smaller, and the scales thicker and more succulent, smooth, even glossy when freshly dug. I have not seen dry bulbs, but as a rule the more fleshy and succulent bulbs are when fresh, the more wrinkled they become when dried. Both are deciduous in November, and the

bulbs of *L. cordifolium* are then plump and glossy, the size of a duck's egg or larger, and formed of five or six (in very large bulbs more) thick, rounded, whitish scales, which become green suffused with brown if exposed to the light and air. These scales are semi-circular or lunate in section, the cut part or interior being formed of rich green cellular tissue, among which are embedded numerous longitudinal fibres, which terminate suddenly at the articulation between the petioles of the decayed leaves and the apex of the bulb scales, leaving a clean scar, as shown in our engraving (see fig. 1).

L. giganteum has larger and more elongated scales of a rough leathery texture, and often fibrous externally, and the articulation between the petiole and the top of the scale is not a clean one, as in *L. cordifolium*, but each scale is terminated by an irregular tuft of fibres, as shown in our illustration (see fig. 1*). The bulbs of both these plants have a caespitose or clustered habit of growth, as in many other species, but their extremely thick scales, formed of green cellular tissue and longitudinal fibres enclosed in an indurated or leathery, glossy or fibrous coat, serve to distinguish them at a glance from their allies.

[*L. CORDIFOLIUM*, Thunb.—Sub-species (1) *Cordifolium* proper.—Japan; figured in Sieb. & Zucc., Fl. Jap., fasc. 3, t. 13, fig. 2, and t. 14; "Flore des Serres," t. 216. Sub-species (2) *Giganteum*.—Central and Eastern Himalayas, from 5000 ft. to 10,000 ft.; figured in Wall. Tent. Fl. Nep., t. 12, 13; Bot. Mag., t. 4673; "Flore des Serres," t. 771, 772; "Belgique Horticole," iii., t. 21.]

2. *L. longiflorum*.—This is a highly variable plant in aboveground growth and flower, but the bulb structure is remarkably constant in form and colour, the main points of

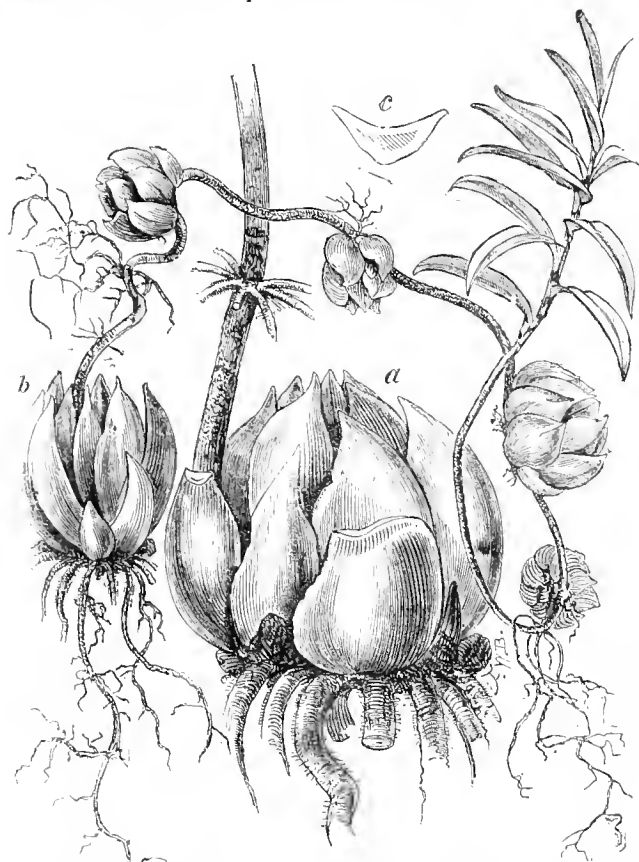


2. *L. longiflorum* (Japan); one-third natural size; cultivated bulbs; colour, yellow.

NOTE.—The bulb of this plant has often the flattened top and restricted base of *L. japonicum* Brownii, but is always white or clear yellow, never purple-stained.

difference being the relative size and thickness of the scales and bulbs. The bulb structure of this plant closely resembles that of the common white *L. candidum*, being of the typical ovoid type, with lance-shaped imbricating scales of a white colour changing to pale yellow on exposure. Our illustration shows the contour of these better than any description could possibly do (see fig. 2). The old flowering bulb of July, 1875, which yet bears the remains of the flower-stem, has, as will be seen, been succeeded by a new bulb, and this at the time our sketch was made in November, 1876, had already commenced to throw up its growth or flower-stem. This is the earliest of all Lilies in making its growth, if we except *L. candidum*, in which the young scale leaves of autumn succeed the foliage of spring so quickly, that practically it may be considered an evergreen species. The Lily now grown in gardens under the name of *L. neilgherrense*—a very variable one—is by Mr. Baker held to be a form of *L. longiflorum*, and will be so considered here, although differing in its late-blooming habits and curious method of self-increase, apart altogether from its larger flowers, different geographical distribution, and occasional change of colour. Its bulb-growth is very similar to

that of *L. longiflorum*, but the scales are fewer and thicker or more fleshy, and the entire bulb is generally more pointed, the scales being tinged with purple, as in its ally *L. Wallichianum*, and not uniformly yellow, as in the forms of *L. longiflorum* proper. Mr. Elwes has pointed out that the bulbs of "this species have the merit of increasing rapidly in size, and multiplying both by offsets and by the long horizontal subterranean stems, which are so remarkable in some specimens. I have seen them come up more than 1 ft. from the bulb, and even



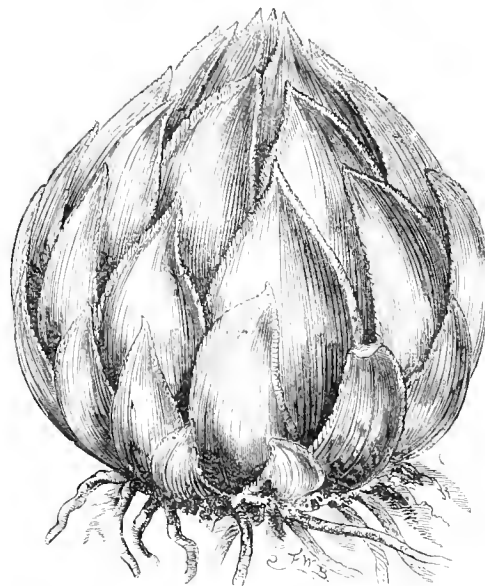
2*. *L. neilgherrense* (India, Neilgherry Hills); one-half natural size: (a) cultivated flowering bulb; (b) cultivated subterranean stem-producing bulb, the stem bearing bulbils at the nodes; (c) section of scale; colour, yellow or yellowish white, sometimes tinged with purple or brown.

descend to the bottom of the pot and come out through the drain hole." Mr. Barr kindly allowed me to turn out and examine several of his large pots of this species, in each of which ten or twelve bulbs had been placed, and about half of these bulbs had thrown up flower-stems, and had also increased in size. Some of the bulbs, however, and, as it seemed to me, the weaker ones, had produced underground stems which had coiled themselves around the sides of the pots, and bore bold bulbs at intervals, as shown in my sketch (see fig. 4); some of these subterranean stolons were fully 2 ft. in length, each having from five to six bulblets, according to length or number of nodes, and here and there a few root-fibres. These fibres, however, were not so strong as the whorl of roots near the base of the flowering stems, and the bulbs which produced these bulblet-bearing stolons, had not increased in size by the increment of new growth; indeed, in some cases where the stoloniferous bulbs were larger than usual, they seemed to have, as a rule, exhausted the parent bulb. Mr. James McIntosh, of Oatlands, Weybridge, planted a bulb of this plant in his garden in May, 1876, which produced a flower-stem 4 ft. 7 in. in height, bearing a solitary flower fully 7 in. across the funnel-shaped mouth. The beautiful *L. philippinense* (see Bot. Mag., t. 6250), a slender, grassy-leaved species, introduced from the Philippines a year or two ago by Messrs. Veitch & Son, has the bulb structure of *L. longiflorum*, which it also resembles in flower; indeed, botanically it is interesting, as showing the extreme development of the peculiarities that mark the *Elvirion* group.

[*L. LONGIFLORUM*, Thunb.—Sub-species (1) *Longiflorum* proper.—Japan and China; figured in Bot. Reg., t. 560; "Flore des Serres," t. 270; Lodd., Bot. Cab., t. 985; Bury Hexand., t. 8. Var. I. *Eximium*.—Japan. *L. eximium*, Court., Spae Mon., p. 14; "Flore des Serres,"

t. 283-4. Syn., *L. Jama-juri*, Siebold & De Vriese, "Tainbow Flora," vol. i., p. 319, t. II. *L. longiflorum* Takesima, Duchartre Obs., p. 38. *L. longiflorum* Liu-Kiu, Siebold. Sub-species (2) *Neilgherrense*.—Neilgherries; figured in Wight, "Icones," t. 2031. Syns., *L. tubiflorum*, Wight, "Icones," t. 2033-4; *L. Wallichianum*, Wight, "Icones," t. 2035, not Schultes; *L. neilgherrenum*, Lemaire Ill. Hort. x, t. 353; *L. Metzii*, Stendel.

3. *L. Wallichianum*.—The bulbs of this plant are in form like those of *L. neilgherrense*, the main difference being in the remarkably thin margins to the scales, and the dried and exposed bulbs acquire a deep purplish-red colour, quite distinct from anything I have seen in any of the *L. longiflorum* type, the scales having thin, scarious margins. This exhibition of colour in the bulb would seem to imply that *L. Wallichianum* is more closely allied to *L. japonicum* or *L. Browni* than to its ally *L. neilgherrense*, although some forms of the latter plant are said to show pink or rose colour in the flower; and that this tint is present even in plants of the white and buff-coloured varieties, is shown by the purplish-brown stem, since this is the result of red colouring matter having blended with the green colour; but, as we have before stated, vagaries of colour in the bulb are so unaccountable and perplexing, that no reliance can be placed on it specifically, and even in the case of individuals, there is apparently no relation between the colour of the bulb and that of the flower. The flowering bulb from which our engraving was made was a large and developed one of a deep purplish-red or port-wine colour, but the most peculiar characteristic seemed to be



3. *L. Wallichianum* (Central Himalayas); natural size; from cultivated bulb colour, dull crimson, with membranous scale margins.

the scarious, membranous margins to the closely imbricated scales. The individual bulb kindly sent to us by Mr. Horseman, of the Colchester New Plant and Bulb Company, is interesting as having supplied the stately inflorescence from which Mr. W. H. Fitch has prepared a beautiful water-colour sketch, hereafter to be published in Mr. H. J. Elwes' work on the genus *Lilium*. Our illustration is exactly natural size, literally scale for scale, but, as a rule, the bulbs of this species do not attain so large a size, except when grown under the best cultural conditions. *L. Wallichianum*, although introduced to Glasnevin many years ago by Major Madden, never seems to have attained anything like its native vigour in our gardens, and its extremely late-flowering habit is against its ever taking a place among the hardy species, although it may by a suitable course of culture be made to bloom earlier. "The formation of the tall, erect stem, having its flower-buds concealed at the top, suggests the idea that it is naturally destined to find its way upwards among low-growing herbage and shrubs into the full light of day, to mature in sunshine its flowers and seed-pods. Such, at any rate, is the account given us by our Indian correspondent of the beautiful and stately *L. Wallichianum*, whose noble, large white flowers may be noticed miles away from the opposite bank of a deep Himalayan valley, growing some 10 ft. or 12 ft. in height, yet only just peering out above the surrounding brushwood and jungle." The success already attained by Mr. James McIntosh in growing its ally, *L. neilgherrense*, in his *Rhododendron* beds at

Oatlands, Weybridge, seems to show that the above conditions are suitable to both plants. A correspondent, writing to Mr. Barr from Mussouree, thus describes the climatic conditions under which *L. Wallichianum* is sometimes found in its Indian habitats:—"Flowers in August, but more usually in September. It is a hardy plant, and here defies both heat and cold. I find it growing at an elevation of 5500 ft. on the open grassy hills, with a slope sometimes of 45, not under forest shelter but in open tracks, the soil full of bits of limestone pebbles, and the matrix composed of lime, clay, and vegetable mould. From the great slope of the hill it is thoroughly free from surplus water, the temperature of the summer sun being from 120 to 130. From June to the end of September it grows in a perfect deluge, and often is enshrouded in mist for days together, that being our rainy season. From September to December it gradually dies down in a fine warm temperature by day, with hoar-frost at night in November. Little rain falls during these months. Sometimes there is but little snow in winter, say 3 in. to 4 in. with hard frost; at other times the snow lies over them 2 ft. in depth, but this is unusual. The bulbs lie at a depth of 6 in. to 9 in., and are uninjured. The plant seldom or never produces seed, but is propagated by suckers or by bulblets from some part of a long root [? underground stem, as in its ally, *L. neilgherrense*], so that the flowering plants are surrounded by numerous young ones of various ages." Another correspondent thus writes:—"this *Wallichianum* is a magnificent Lily; I have seen it in the Himalayas 8 ft. high."

[*L. WALLICHIANUM*, Schultes fil.—Central Himalayas, 3000 ft. to 1000 ft.; figured in Bot. Mag., t. 4561; Lindl. & Paxt., Fl. Gard. 1850, 120; Lemaire, Jard. Fleur., t. 105, 6; "Flore des Serres," t. 612, Syn., *L. Batisua*, Ham. mss. *L. japonicum*, D. Don, not of Thunb. *L. longiflorum*, Wall. Tent. Fl. Nep., t. 29, not of Thunb.]

4. *L. japonicum*.—This is another variable plant, represented in gardens by *L. (japonicum) Browni*, *L. Krameri*, and their forms, all of which are, however, too nearly allied to be separated otherwise



1. *L. japonicum* Browni (Japan); natural size; from full-sized imported bulb; colour, yellowish white, much tinged and dotted with purple.

NOTE.—*L. longiflorum* often has bulbs exactly this size and form, but either pure white or clear yellow, never, or very rarely, suffused or dotted with purple.

than under the above specific heading. *L. Krameri* has rather a small bulb, say the size of a large Walnut, and such bulbs generally throw flowers; indeed, plump bulbs but little larger than a Cobnut frequently produce a solitary bloom. The bulb structure and growth of *L. Krameri* is almost identical with that of *L. longiflorum*, and this seems the best argument against this plant being a hybrid between *L. speciosum* and *L. japonicum*, since there are none of the characters of *L. speciosum* in it at all, and it had best be considered as a well-formed, delicately-coloured *L. japonicum*; or if a hybrid, then *L. longiflorum* and *L. Browni* must have been the parents. The colour of the *L. longiflorum*-like bulb is white shaded with yellow and sometimes suffused with brown. The bulbs of the robust-growing *L. Browni* are peculiar in shape, being somewhat like a Tangerine Orange, oblate in form, the base being curiously constricted, as shown in our sketch, made from a fine bulb kindly sent by Dr. Wallace. The colour of the scales in the specimen sent was white much suffused and dotted with purple, but Mr. Barr tells me that in some soils the bulbs are yellowish-white, and that they do not turn purple on exposure, although the yellow deepens in tone considerably. Dr. Wallace, in one of his papers to THE GARDEN, has pointed out that the bulbs of this noble Lily are peculiarly liable to decay at the base,

and after carefully examining the bulbs of this plant, I believe this is due to their singular structure, the scales being very much hollowed out at the base, and as these become closely imbricated cap-fashion, the moisture, which finds an entrance at the flat apex of the bulbs where the scales are pointed and looser, is prevented from effecting its escape below, and so rots the bulb. As this particular kind is so liable to suffer, it would be well to adopt the Japanese method of planting the bulbs sideways to prevent the lodgment of superfluous moisture. A glance at our figure of the bulbs of *L. longiflorum* shows the bulb of that plant slightly different in shape to that of the *L. Browni* form of *L. japonicum*, but the two types slide into each other almost imperceptibly through the *L. longiflorum* like bulbs of *L. Krameri*.

[*L. JAPONICUM*, Thunberg, Japan, and Korean Archipelago.—Var. 1. *Japonicum* proper; figured in Bot. Mag., t. 1591; Lodd., Bot. Cab., t. 438; Reich., Exot., t. 88. Syn., *L. odorum*, Planch., "Flore des Serres," t. 876, 7. Var. 2.—*Browni*.—Japan; figured in Mielle, "Flore des Serres," t. 47. Syn., *L. japonicum*, Bury Hexand., t. 2.]

5. *L. nepalense*.—I have been unable to obtain bulbs of this newly-introduced Indian Lily.

[*L. NEPALENSE*, D. Don.—Temperate Central Himalayas. This plant is now in cultivation. Var. 1. *Nepalense* proper; figured in Wall., Pl. Asiat. Rar., t. 291. Var. 2. *Trieps*.—Central Himalayas; not known in cultivation; figured in Klotzsch, Reise Wald., t. 83. Var. 3. *Nanum*.—Central Himalayas; not known in cultivation. *L. nanum*, Klotzsch.]

6. *L. candidum*.—This is doubtless the best known of all Lilies, forming clumps of bright yellow bulbs, which differ from those of *L. longiflorum* mainly in having some of their broader scales terminated by leaves. It is the only evergreen Lily we have, and its golden-margined and striped-foliaged varieties are mainly valuable for winter decoration on this account. In good, rich, well-drained soils this Lily increases itself rapidly by offsets and scale-bulbs, but it very rarely bears fertile seeds. It is one of the parents of *L. testaceum*, the bright scarlet Turk's-cap (*L. chalcedonicum*) being the other, and seeing that it is so

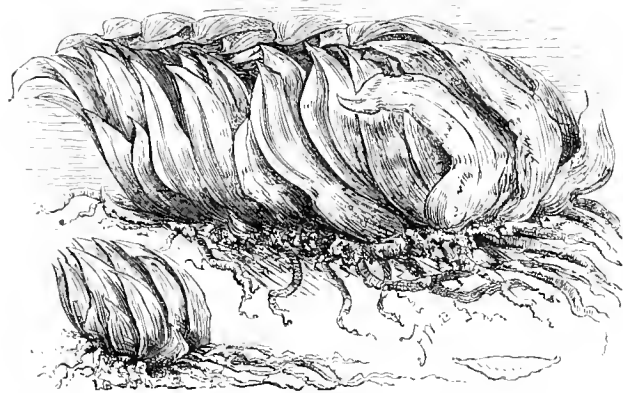


6. *L. candidum* (Southern Europe); one-third natural size; cultivated bulb; scales of do. natural size; section of do. and reduced figure of bulb and winter foliage; colour, yellowish white.

robust and floriferous, one can only hope that Mr. Frank Miles and others who have taken up the cross-breeding of Lilies, will be successful in improving or varying the forms and colours of some of these free-growing old kinds. Our engraving shows reduced views of the bulbs and scales in different positions. It is very rare, however, to find a solitary bulb of this species, as, indeed, of any other perfectly hardy and vigorous-growing Lily, as these, if planted in rich, deep soils, form large clumps, some of the old flowering bulbs breaking up into four or five bulbs, but all fused together on the old root-stock. I have seen clumps of the common white and orange Lilies dug up fully 2 ft. in diameter, these being formed of flowering bulbs, old clustered masses of scales and offsets of all sizes.

[*L. CANDIDUM*, Linn. Sub-species (1) *Candidum* proper.—South Europe; figured in Bot. Mag., t. 278; Redouté, Lil., t. 199; "Flore des Serres," t. 735; Bury Hexand., t. 38; Reich., Fl. Germ., 445. Var. *Striatum* Hort.; figured in "Flore des Serres," t. 735. Sub-species (2) *Peregrinum*.—Never seen in a wild state, and now apparently lost from cultivation in this country; figured in Miller; Sweet, Brit. Flow. Gard., ser. 2, t. 367; Hayne, Arzne, 8, t. 27.]

7. *L. Washingtonianum*.—This beautiful Lily is found on the Sierra Nevada at an altitude of 5000 ft. to 6000 ft., and during the winter months its bulbs are frequently covered with 15 ft. to 20 ft. of snow. Mr. Baker describes its bulbs as being "oblique, white, sub-rhizomatous, with small, lance-shaped scales," and judging from about 1200 imported bulbs of this plant in splendid condition which I saw at Mr. Ball's in November last, that description is accurate. The oblique and elongated habit of growth was



7. *L. Washingtonianum* (America, Sierra Nevada); one-third natural size; imported bulbs. The smaller figure one-fifth natural size.

well shown in these bulbs, two forms of which are represented in the engravings, one of a full-sized old bulb, these being 6 in. to 8 in. in length. Even the plump, short, young, imported bulbs have an oblique appearance, as in the smaller figure, but Mr. Barr tells me that this habit of growth becomes changed under our garden culture, where the bulbs assume the ordinary ovoid type of growth. Messrs. Hooper & Co. had a strong-flowering clump of this species in their nursery at Twickenham a year or two ago, where, planted in marl or gravel in a sheltered position, it flowered freely. The Lily now grown in gardens as *L. purpureum* has a rounder, plumper bulb of a yellowish-white colour shaded with brown, and its habitat is different to that of *L. Washingtonianum* proper, since it is found at a lower altitude in the Yosemite Valley "in a climate of perpetual spring." It is by some called *L. Washingtonianum*, "Eel River variety," since it is tolerably abundant in the moist valley of that stream; its umbel-like style of flowering may serve to distinguish it from the type. The bulb-growth, although very distinct in imported specimens, cannot be trusted as a distinguishing character, since cultivated bulbs of *L. Washingtonianum* proper are nearly identical with those of *L. purpureum*, and even the points of difference between the native bulbs of both plants are not more than can readily be accounted for as being due to difference of soil and climate. *L. Humboldtii*, although very different to *L. Washingtonianum* in its flower, has an ovoid, oblique bulb, very similar in shape to the smaller figure (fig. 7), and it is very rare that they are found with anything more nearly approaching the rhizomatous habits of *L. Washingtonianum*.

[*L. WASHINGTONIANUM*, Kellogg.—California; figured in Gard. Chron., 1871, t. 142; "Regel Gartenflora," t. 170; "Flore des Serres," t. 1975-6. Syn., *L. Bartrami*, Nuttall, Herb.]

Sub-genus 2.—*Archelirion*.

Perianth broadly bell-shaped, horizontal or slightly drooping, its divisions ovate or lanceolate, not distinctly clawed, spreading widely from below the middle when fully expanded; style declinate, and stamens much curved.

8. *L. tigrinum*.—The bulbs of this variable plant are, according to Mr. Baker, "perennial, globose with oblong, lance-shaped, acute scales." The specimen selected for me by the Colchester Bulb Company was, as shown in our engraving (8, fig. 1) as large as an Orange, and of a similar oblate contour, the scales of each being very few in comparison with such bulbs as those of *L. bulbiferum* (*L. Thunbergianum*), and very much

broader. We have a small group of so-called species with this type of bulb-growth, such as *L. Leichtlini*, *L. Maximowiczii*. *L. tigrinum* sinense is, so far as I have seen, the largest and most vigorous in bulb-growth, after which we descend to the smaller but similarly shaped bulbs of *L. Maximowiczii* (syn., *L. tigrinum jucundum*), and the still smaller ones of *L. Leichtlini*, which vary from the size of a Filbert to that of a large Walnut, but all being whitish in colour, and having an oblate contour, with broad scales. The last-named plant, apart from its pale yellow flowers, has a singular spreading habit of growth, the flower-stems having a running habit, often coming up 1 ft. or more from where the bulb was planted, and on this account the plant cannot be grown in a pot with success, since the stems run to the sides of the pot, and so become stunted and otherwise injured. The plants we have enumerated above, together with *L. tigrinum majus*, and *L. t. splendens*, are clearly shown to be related by their bulb structure; and Mr. Baker, in describing *L. Leichtlini* as a species on the authority of Dr. Hooker, remarks, that it flowers in July in gardens at the same time as *L. tigrinum*. It seems to me most probable that this plant is a yellow seedling variety, raised in Japanese gardens; nor is this change of colour remarkable, since we have one or two varieties of the crimson-scarlet Chinese or Mongolian *L. concolor* distinguished by their yellow flowers.

[*L. TIGRINUM*, Gawl.—Japan and China; figured in Bot. Mag., t. 1237; Redouté, Lil., t. 395 and 475. Syn., *L. speciosum*, Andrews, Bot. Rep., t. 585, not Thunberg. Var. 1. *Fortunei*, Hort. Var. 2. *Splendens*, Hort.; figured in "Flore des Serres," t. 1931-2; Floral Mag., t. 509. Syn., *L. tigrinum Leopoldi*, Hort. Var. 3. *Lishmanni*, Moore, "Florist," 1873, p. 13 with figure.]

9. *L. speciosum*.—This plant has a bulb the size of a large St Michael Orange, globose, brown or brownish-red as a rule, sometimes white or yellowish, the scales being thick, fleshy, broad, lance-shaped, and closely imbricated in newly dug bulbs, but with loose or open scales in dried imported specimens. Our figure shows a full-sized flowering bulb with open scales, and a reduced sketch of a freshly dug specimen, in which the curved fleshy scales are closely imbricate. The bulbs of this plant are extremely variable in colour, varying from white to deep purplish-crimson, especially in light porous soils. This plant has been largely propagated from seeds by the Dutch growers, and formerly by Mr. Groom, Messrs. Henderson & Son, and other bulb cultivators in this country; hence we find numerous minor differences in growth and colour of the flowers.

[*L. SPECIOSUM*, Thunberg.—Japan; figured in Bot. Reg., t. 2000; Sieb. & Zucc., Fl. Jap., fasc. 3, t. 12 and t. 13, fig. 1. *L. speciosum*, var. *Kaempferi*, Bot. Mag., t. 3785; "Flore des Serres," t. 276-7. Syn., *L. lancifolium*, Hort., not Thunberg. Stems purplish-brown. Var. 1. *Rubrum*, Masters in Gard. Chron., 1872, p. 1522, Var. 2. *Album*, Masters l.c. Stems green. Var. 3. *Speciosum* proper. Var. 4. *Roseum*, Masters l.c. Syn. *L. speciosum*, Paxt. Mag. v., t. 1. Var. 5. *Punctatum*, Lom., "Flore des Serres," under t. 277. Syn., *L. lancifolium*, Paxt. Mag. viii., t. 267, not Thunberg. Var., Tametano, Zucc. Syn., L. Broussarti, Morren, Mém. Acad. Roy. Brux., Feb., 1834. *L. speciosum vestale*, Hort. *L. eximium*, Hort.]

10. *L. auratum*.—The bulbs of this variable species are as large as, and similar in colour, shape, and structure to, those of the last-named plant, a fact which goes some way to prove their near alliance, especially when we find this more fully proved by the fact of these two species having been hybridized, the beautiful *L. Parkmani* being the offspring of these two species, as also was an earlier hybrid called *Purity*, and certificated some years ago by the Royal Horticultural Society at South Kensington.

[*L. AURATUM*, Lindley.—Japan. Var. 1. *Auratum* proper; 1867, p. 294.—figured in Bot. Mag., t. 5338; "Flore des Serres," t. 1528, 1531; Ill. Hort., ix., t. 338; Revue Hort., 1867, t. 371. Syn., *L. Dexteri*, Hovey. Var. 2. *L. Wittei*, figured in Suringar in *L. Koch Wochens.*]

Sub-genus 3.—*Isolirion*.

Perianth broadly bell-shaped, quite erect, its divisions oblong-lanceolate, broadest about the middle, spreading in the upper half or third when fully expanded; stamens divergent on all sides from the centre of the flower.

11. *L. philadelphicum*.—Mr. Baker describes the bulbs of this plant as "small, annual, stoloniferous; scales fragile, thick, nearly club-shaped," and I have elsewhere found them described as being produced in a rhizomatous manner in their Canadian and Carolinian habitats; my figure was made from a specimen selected from a small importation of fifty or one hundred roots which I saw at Mr. Barr's, and represents a full-sized bulb, but I saw no traces of rhizomatous growth; but it is possible they had been broken up before transit, previous to their having been counted and invoiced. The bulbs vary in size from that of a Cobnut to a large Walnut; but large and small

alike bore traces of the old flowering stems. I find the scales thick and club-shaped, as described by Mr. Baker, while the fragility to which he alludes is due to most of the scales being jointed about the middle, so that the upper half is apt to be snapped off if the bulbs be not carefully handled. As shown in our sketch, the scales in the new-growing point of the bulbs bear a few slender, flexuose leaflets, but this is not always the case. The bulbs of this Lily are very much like those of the Californian *Fritillaria recurva*, which also has jointed or articulate scales, but a much thicker root-stock or depressed stem than our present plant. Some American authors have described this plant as having stoloniferous or rhizomatous bulbs, but I have seen no evidence of this being the case; it is, however, a point on which we require fuller evidence from those who have collected the plants in its native habitats.

[*L. PHILADELPHICUM*, Linnaeus.—Canada and Northern United States; figured in Bot. Mag., t. 519; Reloué, Lil., t. 101; Lodd., Bot. Cab., t. 976; Bot. Reg., t. 594. *L. andinum*, Nuttall. *L. umbellatum*, Parsh.]

12. *L. medeoloides*, A. Gray.—This Japanese plant is said to be intermediate between *L. avenaceum* and *L. Martagon*, "but is distinguished by its erect flowers, falcate (not revolute) segments, and short stamens and pistil." It is not known in cultivation.

13. *L. Catesbæi*.—Mr. H. J. Elwes thus describes the bulb of his plant in a former issue of THE GARDEN:—"The bulb of *L. Catesbæi* is very peculiar and unmistakable. It is figured, though not very well, in the 'Botanical Magazine,' t. 259, and may be easily recognized by its small-sized, thin, pointed, white scales, some of which are in weak bulbs prolonged into a narrow leaf. It has been out of cultivation for a long time, I believe, the plant grown as *L. Catesbæi* in some nurseries being the one figured in the 'Botanical Magazine,' t. 872, as *L. pennsylvanicum*, but really a Siberian Lily, and, as I think, differs from the true *L. davuricum* in the form of the bulb, which is very remarkable in both these species." Mr. Baker

says, "Bulb exactly like that of *L. philadelphicum*," but, with Mr. Elwes, I must hold that fresh bulbs are very distinct. I saw a small parcel of thirty or forty bulbs at Mr. Barr's grounds one morning, and the very fact that these two species were so distinct in bulb structure while their aboveground growth is in some points very similar, led to the preparation of this series of sketches and notes on Lily bulbs. *L. oxypetalum* is the only Lily I know which has similar bulbs, but the scales of that plant are pointed, whereas nearly all the smooth white scales of *L. Catesbæi* bear a scar at its apex where a leaf has fallen away, nearly all the young scales being terminated by slender, sinuate leaves, as shown in our illustrations on p. 137.

[*L. CATESBÆI*, Walters.—United States; figured in Bot. Mag., t. 259; Lodd. Bot. Cab., t. 807; Sweet, Brit. Flow. Gard., ser. 2, t. 185. Syn. *L. spectabile*, Salisb. Parad., t. 5, not Link.; *L. carolinianum*, Catesby, not Michaux.]

14. *L. bulbiferum*.—An extremely variable plant, the bulbs of the different forms varying in size from that of a small Walnut, as in *L. alutaceum* (a dwarf, apricot-coloured species, which bears its erect flowers on stems 1 in. or 2 in. in height) to large, plump bulbs the size of a large Orange, and having very closely imbricated scales, as in *L. Thunbergianum splendens* and in *L. umbellatum maculatum* of gardens. Mr. Baker describes the bulbs as "ovoid-perennial, scales few, broad, and acute." Our illustrations give some idea of the variability of bulb-growth observable in the varieties or forms of this species. The bulb of *L. umbel-*

latum maculatum sent us from Colchester was fully 4 in. in diameter, the numerous fleshy, broadly lance-shaped, purplish scales, being closely adpressed to each other so as to give a remarkably solid appearance to the whole bulb. Mr. Baker describes this as a "luxuriant garden form of *L. davuricum*." With it came the smaller bulb of *L. croceum*, with broader and fewer pinky-white scales, and these are more constricted than in the last. *L. Thunbergianum splendens* has bulbs similar to those of *L. umbellatum*, but smaller, with purplish-tinted, closely-adpressed scales, and the bulbs are apt to assume the flat-topped contour so characteristic of *L. Browni* and *L. longiflorum*. *L. davuricum* proper is rather peculiar in its bulb-growth, and we figure two of the most distinct of its forms. One type has ovoid bulbs composed of narrow, lance-shaped, fleshy scales, these last being extremely brittle at the base, indeed, the old flowering bulbs are apt to fall to pieces unless handled very gently. This form, as shown in our sketch, is very proliiferous, numerous little bulblets being formed at the base of the bulbs, and among the wig-like mass of roots at the base of the bulb. It has long been grown by the Dutch florists, by whom this proliiferous habit of scale propagation has doubtless been fostered. Another form I saw in Mr. Bull's collection, although identical with the last in aboveground growth, has a more globular bulb composed of shorter, blunter, and more fleshy scales, many of the latter being once, and some even twice, jointed as shown in our sketch. Mr. Elwes tells me he received

similar bulbs from Maximowicz, and that he is instituting further inquiries respecting them. Another distinct Lily referred under the heading of *L. bulbiferum* by Mr. Baker is *L. Wilson* (of Leichtlin), for a bulb of which I am indebted to Mr. G. F. Wilson himself. The largest bulb which could be found at the time is here figured, and resembles that of *L. bulbiferum* in size and contour, being composed of thick, closely adpressed, pinkish scales. Herr Max Leichtlin, who is the authority for this species, suggests that it may possibly be a hybrid between *L. elegans* (*L. Thunbergianum*) and *L. speciosum*. *L. bulbiferum* has long been grown in European

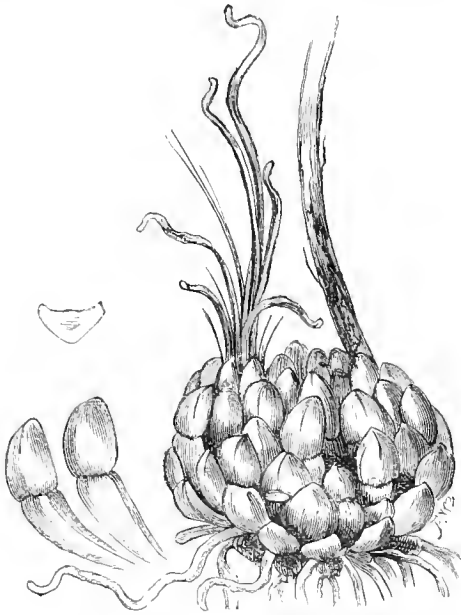


2. (1.) *L. tigrinum sinense* (China and Japan); natural size; large cultivated bulb. (2.) *L. Leichtlini*, natural size. (3.) Small bulb of the same; colour, yellowish white. [See p. 135.]

gardens, and, like many other species, has become differentiated by seminal reproduction.

[*L. BULBIFERUM*, Linn.—Sub-species 1. *Bulbiferum* proper—Austria, Sweden; figured in Jack Austr., t. 226; Bot. Mag., t. 36; Redouté, Lil., t. 210; Reich., Germ., t. 454; Regel Gartenflora, 1872, p. 231, with woodcut of bulb. Sub-species 2. *Croceum*, Chaix, —France, Switzerland, and North Italy; figured in Lodd., Cab., t. 784; Reich., Germ., t. 454. Sub-species 3. *Davuricum* Gawl.—Through Siberia; figured in "Regel Gartenflora," t. 740, and 1871, p. 231, with woodcut of bulb. Syn., *L. pennsylvanicum*, Gawl., Bot. Mag., t. 872; *L. spectabile*, Link; Reich., Icon. Exot., t. 30; "Regel Gartenflora," t. 349; *L. Baschianum*, Lodd., Bot. Cab., t. 1628. Sub-species 4. *Thunbergianum*, Schultes fil.—Japan. Var. 1. *Thunbergianum* proper; figured in Lindl. Bot. Reg., 1839, t. 38; Maud. Bot., t. 158. Syn., *L. aurantiacum*, Paxt. Mag., 6, p. 127, with a figure. Var. 2. *Brevifolium*, Baker & Dyer in Gard. Chron., 1872, p. 1356. Var. 3. *Bicolor*, Moore in Flor. Mag., t. 104. Syn., *L. pictum*, Hort. Sieb.; *L. aurantiacum*, Hort. Krelage. Var. 4. *Wilsoni*, Leichtlin. Syn., *L. pardinum*, Moore, Flor. and Pom., 1861, p. 121, with a plate. Var. 5. *Alutaceum*, Baker & Dyer l.c. Syn., *L. Thunbergianum aureum nigro-maculatum*, "Flora des Serres," t. 1627. Var. 6. *Armeniacum*, Baker & Dyer. Var. 7. *Citrinum*, Hort. Wilson. Var. 8. *Sanguineum*. Syn., *L. sanguineum*, Bot. Reg., 32, t. 50; *L. biligulatum*, Hort.; *L. lateritium*, Hort. Var. 9. *Atro-sanguineum*, Baker & Dyer l.c. Syn., *L. hematocroium*, Lem. Ill. Hort., t. 503.

Var. 10. *Fulgens*, figured in Morren, Spæe Mon., 29; Lemaire, Ill. Hort., t. 422. Syn., *L. venustum*, Kunth, "Flora des Serres," t. 657; *L. fulgens* var. *staminosum*, Lemaire, Ill. Hort., t. 1422, is a double-flowered form.]



11. *L. philadelphicum* (Canada and N. United States); natural size; from an imported bulb; colour, white or yellowish. [See p. 135.]

15. *L. lancifolium*, Thunberg.—Not in cultivation, possibly a variety of the last.

16. *L. pulchellum*.—This is now regarded as a form of the next species.

[*L. PULCHELLUM*, Fisch. & Meyer.—East Siberia; figured in Regel Gartenf., t. 284, fig. 2; Revue Hort., 1862, p. 131, with a figure.]



13. *L. Catesbaei* (United States); from imported bulbs; colour, white.

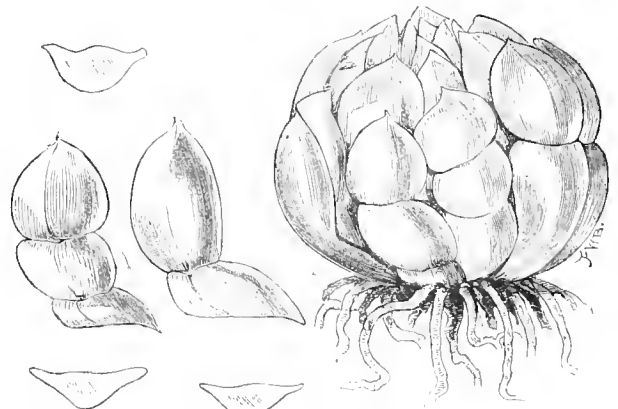
17. *L. concolor*.—*L. concolor* may be taken as the type of a group of Siberian, Chinese, and Japanese Lilies, having very distinct bulbs; and Mr. Baker's description of the bulbs of *L. concolor* will almost include all of them. These are small yellow or scarlet-flowered species of slender habit, the most distinct being *L. callosum*, *L. tenuifolium*, and *L. concolor*, with its distinct forms, as *L. sinicum*, with solitary, broad, scaled-bulbs;

L. parthenseion, with caespitose or clustered bulbs, *L. coridion*, also with caespitose bulbs, but distinguished by its scarlet flowers; *L. pulchellum*, bulb ovoid, scarcely 1 in. long (red, black-dotted flowers), and a yellow-flowered variety, is cultivated in Japan, being found wild on stony hills in Chinese Mongolia. All the bulbs of this section have few, but thick wax-like scales, which are not only as a rule closely imbricate, but fold closely round each other in a more or less convolute manner. The only Lily which has bulbs



14. *L. divuricum* (Europe, Dahuria); natural size; cultivated bulb; colour, whitish. [See p. 136.]

anything like these three types is the Indian *L. polyphyllum*, except that Mr. Elwes remarks, that he has seen somewhat similar bulbs (presumably those of a species of Lily) from California. *L. concolor* has ovoid bulbs, composed of eight or ten fleshy-white constricted or fiddle-shaped scales as shown in the sketch. *L. callosum* has similar bulbs, but inclined to be oblate in form—that is, not so much pointed; and there are in the bulbs of this plant more scales, these being constricted, as in the last-named type. *L. tenuifolium* has



14. *L. davuricum* (Europe, Dahuria); natural size; from a large imported bulb; colour, white. [See p. 138.]

extremely variable bulbs, some being ovoid, the size of a large Walnut and composed of eight or ten scales; others being quite slender formed, of two or three narrow elongated scales. A yellow variety of *L. concolor* (*L. concolor* var. *luteum*) is figured at t. 885 of the "Gartenflora" for December, 1876, and may possibly be identical with the yellow variety of *L. pulchellum* alluded to as being wild in Mongolia.

[*L. CONCOLOR*, Salisb.—China and Japan. Var. 1. *Concolor* proper.—China; figured in Salisb. Parad., t. 47; Bot. Mag., t. 1165. Var. 2. *Sinicum*, Lindl.—China; figured in Paxt. Flow. Gard., vol. ii, misc. t. 193; Ill. Hort., t. 100; "Flora des Serres," t. 1206

Bot. Mag., t. 6005. Var. 3. *Coridion*, Sieb. & De Vriese. Figured in Sieb. & De Vr., "Tainbow Flora," v. ii., p. 341, with a figure. Var. 4. *Partheneion*, Sieb. & De Vriese.] F. W. B.

COMMON LILAC MADE WHITE BY FORCING.

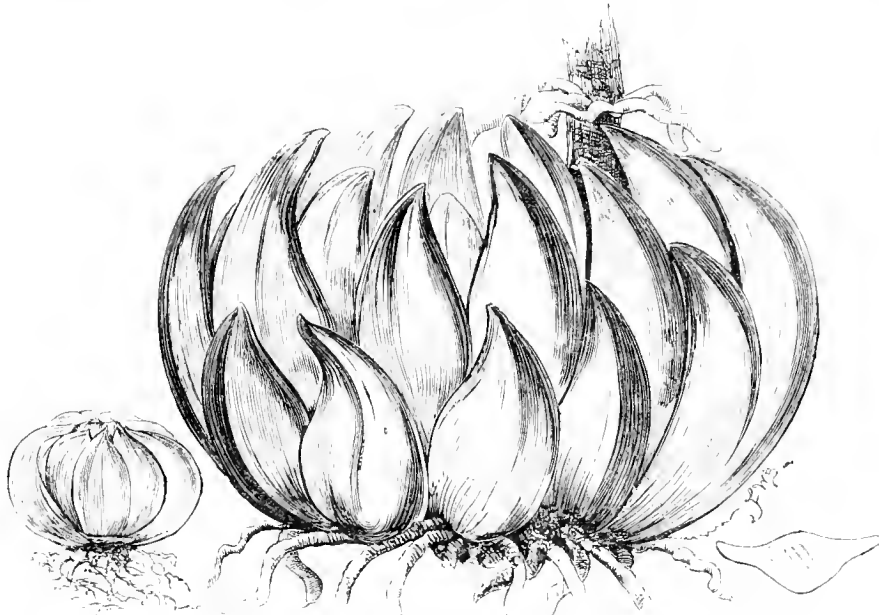
PERHAPS there is no other flower so fragrant during midwinter as the Lilac when forced in darkness; and as it is within the reach of all who are in possession of a Mushroom-house or heated shed, we have often wondered why those who appreciate sweet-scented flowers should not have paid more attention than hitherto to this admirable method of Lilac forcing. It is true that when plants are subjected to a high temperature in a dark house or shed, they are afterwards useless, but the yield in beautiful flowers would trebly compensate for the original value of the plants. Lilac flowers produced in this way are held in such esteem with us that we have had a small house specially fitted up for obtaining them; we have, therefore, little difficulty at any time, with two or three weeks' notice, in getting a basketful of these truly beautiful snow-white flowers, two or three sprays of which will perfume the air of a room for days. Our house is merely an old shed with a closely-thatched roof; but we have taken care to have efficient heating power. We have also managed to effect the same purpose with success by partitioning off heated structures in out-of-the-way corners, varying them according to circumstances connected with the atmospheric conditions of the houses in which the forcing is being carried out. Our practice is as follows:—In autumn we examine our shrubby borders, and endeavour, as far as possible, to select the requisite number of plants from places where overcrowding is most apparent, and where a thinning out is most likely to do good; we choose bushes which are conspicuous for prominent, well-developed buds, and these we partially cut round some time previous to their being lifted, in order to prepare them for early work. It must be borne in mind that unless the buds are prominent, and the flowers present in embryo, any attempt at forcing will be futile. We have tried young plants from the nursery more than once, but have always failed, young trees seeming to lack sufficient stamina to undergo such an ordeal of forcing in the absence of light. To our mind

nothing can go further to exemplify—if exemplification be needed—the quantity of stored-up nutriment in deciduous trees, than to see one of those glorious bushes literally covered with wreath after wreath of flower, without any indication of growth in the shape of young shoots or leaves; for if forcing be conducted slow enough to allow of young shoots being pushed, or even simultaneous action of leaf and flower, the latter will be of little value. It will thus be seen that success lies in rapidity of action, provided the material in hand be in all respects suitable for such forcing. As the season advances, the progress of vegetation renders forcing less risky. From the beginning of January a fortnight or three weeks at the most will be sufficient time after the plants are introduced into heat till the flowers are ready for cutting. The syringe may be freely used at first, and heat gradually applied according to the progress made, but a dry atmosphere must be maintained as the flowers expand or they will damp off in a few hours, and when damping off sets in no treatment seems powerful enough to counteract the evil.

We have a nursery of the variety known as Charles the Tenth, in an open favourable situation; from the plants in this all suckers are removed as they appear during the summer, and they are lifted annually so as to prepare them for this system of forcing. When we think these young trees are fit for forcing, we anticipate results in proportion—perhaps in excess of our labour. An error too commonly made is to mistake the Persian Lilac for the common one; but the Persian will not submit to forcing in darkness.—"The Gardener." [In France, where this system originated, the usual plan is to cover the glasshouse with straw mats.]

Lilies Seeding.

—I wonder if any reader of THE GARDEN has ever succeeded in obtaining a ripe pod of seed from *Lilium caudatum*, the old white garden Lily. I have done so this year, and have also got a fine pod of *Lilium excelsum*; I hope, therefore, to be able to raise hybrids from these Lilies. Seed of *L. auratum* and *giganteum* is exceedingly thin, so thin that I could not believe it was perfectly formed. However, I see to-day that my *L. auratum* seed crossed with the Giant Tiger Lily is coming up freely; it was sown exactly a year ago, and some *L. auratum* seed from Mr. McIntosh's garden at Weybridge is also coming up well. Dr. Moore tells me that the long-tubed Lily which he showed me at Glasnevin, which was sup-



9. *L. speciosum* (Japan); natural size; imported flowering bulb, with a reduced figure of freshly-dug specimen; colour, white-yellow, orange-brown, or reddish-purple. [See p. 135.]



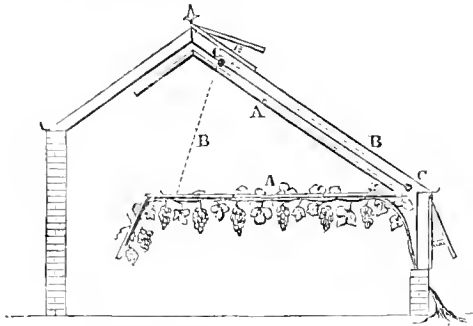
14. *L. bulbiferum* (Europe and N. Asia)—*L. Thunbergianum*—well-grown flowering bulbs; colour, yellowish white, suffused purple or brown. [See p. 136.]

to be able to raise hybrids from these Lilies. Seed of *L. auratum* and *giganteum* is exceedingly thin, so thin that I could not believe it was perfectly formed. However, I see to-day that my *L. auratum* seed crossed with the Giant Tiger Lily is coming up freely; it was sown exactly a year ago, and some *L. auratum* seed from Mr. McIntosh's garden at Weybridge is also coming up well. Dr. Moore tells me that the long-tubed Lily which he showed me at Glasnevin, which was sup-

posed to be the true *L. eximium*, was sent to him by a missionary in China. I suppose my getting a pod of seed from *L. excelsum* does not disprove the theory of its being a cross between *L. chalcedonicum* and *L. candidum*. Mr. Thompson, of Ipswich, informs me that it was first noticed in a bed of Lilies at Erfart in Prussia about the year 1816.—FRANK MILES, *Bingham*.

WEST'S PATENT ADJUSTABLE TRELLIS.

THIS new trellis, of which the annexed woodcuts are representations, is the invention of Mr. J. F. West, of Lynnmouth Lodge, Reigate. It is a contrivance which will doubtless be useful, inasmuch as it does away with the often inconvenient use of ladders and steps in the operations connected with Vine culture, whether they consist of tying-in or adjusting the shoots, or the more tedious work of thinning the berries. Instead of having to mount to the roof to perform these operations, those who have this trellis fixed can have the Vines brought down to any convenient height, so that in fact they can



West's Adjustable Trellis as Lowered.

be carried out while the operator is standing on the floor. It will be equally available in the case of roof creepers in conservatories, so that if not too costly, it may be regarded as a boon to cultivators. A great advantage belonging to this arrangement of trellis is, that it can be moved gently by gradation to any suitable position, in order to subject any portion of the Vines readily to the sun's influence. The lowering of the trellis cannot in any way injure the stem of the Vine, if trained as



West's Adjustable Trellis.

in the annexed illustration, the deflection being very slight. The trellis may be constructed of either iron or wood; when made of the former, which is preferable in many respects, it combines lightness of appearance with strength and durability; it can, moreover, be fitted to any shaped house. Vines covering a lineal space of 60 or more ft. may be lowered singly or together by turning one handle. In the illustration AA shows the trellis in position and lowered; BB, the chains for lowering and raising; and CC, the drums and pulleys round which the chains work. DD, in the second illustration, shows the form and construction of the trellis.

Christmas Roses from Seed.—Miss Hope doubts seeds being raised from the common Christmas Rose. I had a plant in a pot in the greenhouse, and it seeded so that I can quite believe it would seed more freely in a warmer climate than England. *Helleborus giganteus* (syn. *maximus*) has never seeded with me under the same circumstances—the seed-vessels seem to swell, but there is nothing inside them. What a grand plant this is! I had a bloom more than 4 in. across and a leaf nearly 18 in. wide. There is an immense plant of it in the garden at Monks Park, near Corsham, Wilts, which has evidently been there for many years. The proper time for blooming is from October till January, but old plants of it will continue to throw up flowers till late in February. I expect it would seed readily if crossed with other *Hellebores*: I have no others with

which to experiment, but I expect the famous seedlings raised in the Botanic gardens at Berlin have something to do with it.—FRANK MILES, *Bingham*.

— Last May I gathered from our Christmas Roses several seed-pods just as they were bursting, and sowed the seeds in pans which were placed in a cold frame; as they showed no signs of germinating they were removed in the autumn to a cold house, and about Christmas the young plants began to appear, and now they are sturdy and otherwise in excellent condition. Although Christmas Roses are hardly enough, it is best to sow their seeds in pans or boxes, as under such circumstances they can be placed under shelter during severe frost, which often displaces and kills the young seedlings when just commencing to root.—J. GROOM.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

FEB. 14.

THIS meeting being held in the large conservatory, the choice collections of plants sent by Messrs. Veitch, Mr. Bull, Mr. B. S. Williams, and others, were seen to better advantage than in the Council room, where they have hitherto taken place. The collection of Apples sent by Mr. W. E. Hubbard from his gardens at Leonardslee, near Horsham, was a very interesting one, nearly all the varieties being as fresh and plump as if just gathered, and the whole remarkably well coloured, and well deserved the recommendation of a medal, which was unanimously made by the Fruit Committee. Cyclamens were well represented from several growers, those sent by Mr. James, of Isleworth, being especially noticeable for their vivid colours and compact, floriferous habit. Messrs. Veitch & Sons sent a select group of hardy flowering shrubs, the most remarkable among them being a variety of *Cydonia japonica*, of elegant habit, bearing white flowers and pearly buds. This will be a useful addition to choice, early-blooming shrubs. Orchids were well represented by collections from Messrs. Veitch, Williams, and Bull among trade growers; and Sir Trevor Lawrence, Mr. Michaels, Mr. Terry, Lord Lonsborough, and others, also contributed some fully-grown plants. Special prizes were offered by Messrs. Veitch for their new double *Poinsettia*, and three growers competed, Mr. Ollerhead carrying off the premier award with a well-coloured example, in which the central branchlets were well developed. There can be no doubt as to this being a really first-rate plant, although it has been somewhat injured by over propagation. Mr. Stevens, of Trentham, furnished a bush tree of the *Calville Blanc Apple*, bearing about a dozen large and well-coloured fruits. The following new and rare Orchids and other plants received certificates:—

***Cycas media latissima* (Bull).**—A stately variety of *C. media*, having feathery foliage produced from a stout stem 4 ft. in height. It promises to be a useful conservatory plant, being more graceful than its allies, *C. circinalis* and *C. revoluta*.

***Croton Mortei* (Bull).**—A distinct form, having broadly-ovate, lanceolate foliage, of a dense green colour, veined and blotched with golden yellow. Having evidently a robust habit of growth, and being distinct in its markings, this plant will doubtless prove useful for decorative purposes and for exhibitions.

***Spathoglottis Lobbi* (Sir T. Lawrence).**—A pretty deciduous Orchid of *Bletia*-like aspect, bearing graceful spikes of golden yellow flowers. It is not showy, but well deserves a place in collections.

***Calanthe vestita rubro-oculata gigantea* (Sir T. Lawrence).**—The most stately and desirable of all the *Calanthes*, with the exception of *C. Veitchi*. It is robust in growth, and produces stout, arching spikes from 3 ft. to 4 ft. in length. The individual flowers are larger than those of any other *Calanthe*, and are of a soft creamy-white colour with a deep Roman-red blotch in the callosity between the column and base of the lip. Undoubtedly in every way a first-class plant.

***Odontoglossum Cervantessi decorum* (Sir T. Lawrence).**—This is a great improvement on the old *O. Cervantessi* or *O. membranaceum roseum*, which it resembles in colour and in the concentric bars on the sepals and petals, but the flowers are at least twice the size of those of the type, and the markings on the broad, crisped petals and heart-shaped lip are much richer.

***Cyclamen persicum compactum magnificentum* (C. Edmonds).**—A compact-habited form of the well-known Persian Cyclamen, having very large and well-formed flowers. It will be valuable for breeding purposes, although in its present state it does not appear to be superior to the large-flowered strains advertised by Mr. Williams and other Cyclamen growers.

***Masdevallia chimæra* var. *Wallisi* (Veitch).**—A form of the weird-looking, spectral *Masdevallia*, from which it differs in having darker markings on the flower. It is a free-grower, and, like some of its congeners it, after the manner of *Stanhopea*, pushes its flowers through the compost of the basket in which it should be grown.

***Amaryllis Princess of Teck* (Veitch).**—A shapely variety of a vivid Roman-red colour, and one of the best of a beautiful group of hybrids, which show great variety in their local colour and markings.

Belonging, as it does, to an easily cultivated class of bulbs, this plant will be welcome for decorative purposes.

Cydonia japonica albiflora (Veitch).—A slender-habited variety of a well-known winter and spring-flowering plant, bearing pure white flowers and buds on leafless branches. It is so distinct from the better known crimson-red and blush forms, and it will doubtless prove an acquisition.

Miscellaneous Plants.—Extensive and select groups of Amaryllids, Cyclamens, Orchids, and other plants, came from Messrs. Veitch & Sons, of Chelsea. Among the Orchids we noticed a dozen varieties of *Lycaste Skinneri*, varying in colour from pure white to the darkest rose, with crimson-blotched lips. The flame-coloured *Laelia harpophylla* bore two spikes, and a fresh and vigorous plant of the *Masdevallia polysticta* bore from fourteen to sixteen spikes of white, rosy-dotted flowers; *Masdevallia chimera* var. *Wallisi* bore several of its ferocious, hispid-looking flowers. Perhaps the most interesting, although not the most showy, Orchid in this group was *Dendrobium glumaceum*, bearing fifty or sixty Grass-like spikes of white fragrant flowers among the green foliage, and with this were associated *Odontoglossum Alexandrae*, a good variety, bearing a thirteen-flowered spike; *Cattleya Trianae* in several varieties; a large specimen of the glossy-flowered *Cypripedium villosum*; and a strong plant of the new hybrid *Chysis Chelsii*, bearing a stout five-flowered spike of rich orange flowers. *Anacardium sesquipetale* bore five very good flowers, and the pure white *Odontoglossum Roezli*, contrasted with the rich purple *Dendrobium luteolum*, was much admired. A strong plant of *Dendrobium Wardianum* bore sixteen or eighteen large, wax-like, purple-tipped flowers on two bulbs nearly 4 ft. in length. *Dendrobium endularis*, a new hybrid raised by Mr. Selen between *D. heterocarpum* and *D. japonicum*, with soft, white, star-like flowers, each being relieved by a brown spot in the centre of the lip. *Cypripedium Hayaldianum* is a strong-growing plant, much in the way of *C. Lowii*, and with it was associated *Odontoglossum Caradinei*, a soft, yellow-flowered plant of great interest, being seemingly intermediate between *O. Lindleyanum* and *O. Hallii*. The crimson-purple and white-flowered *Cyclamens*, staged in Messrs. Veitch's collection, were very effective and excellent examples of good culture. A choice group of new and rare fine-foliaged and flowering plants came from Mr. W. Bull, consisting of Orchids and Cyclamens, backed by Palms, Cycads, and tall *Dracaenas* of various kinds. Among these we noted plants of *Uropeidium Lindleyi*, a crimson-petalled form of *Lycaste Skinneri* named *rubella*, *Odontoglossum cirrhosum* with white and yellow brown spotted flowers, and a fine variety of *Cypripedium pubescens*. One of the most effective *Crotons* in the group was the crimson, brown, and yellow-foliated *C. majesticum*, with leaves nearly 2 ft. in length. Mr. B. S. Williams also contributed a group of Orchids, Palms, Cyclamens, Primroses, and Ferns. A plant of *Cypripedium Dayanum* bore a solitary flower, and one of *Lycaste Skinneri* fourteen flowers; with these were associated flowering plants of *Odontoglossum cariniferum*, *O. cordatum* bearing two spikes of rich brown and white flowers; *Goodyera discolor*, remarkably well-flowered; and a group of large-flowered white-fringed Primroses. Mr. Michaels, of Cholmeley Park, Highgate, N., sent a rich collection of flowering Orchids, including about a dozen plants of *Phalenopsis Schilleriana*, *P. grandiflora*, and *P. amabilis*; also a small plant of the chaste, white, purple-barred *Colax jugosus*. Two small-flowering plants of the rare *Vanda Cathcarti* were also noticeable in this group. Among *Odontoglossums* we noted good varieties of *O. Pescatorei*, *O. gloriosum*, and a splendid form of *O. triumphans*. A plant of the thick-bulbed *Dendrobium Wardianum* Lowi bore about twenty-four large, waxy, bright-tinted flowers; *Oncidium fuscatum*, very nicely coloured, and having the varnished disc of the lip larger than usual, was shown in this collection. A similar, but larger-flowered, paler-coloured form, was sent from Sir Trevor Lawrence's collection. Mr. Michaels had a good variety of *Dendrobium luteolum*. Sir Trevor Lawrence also sent a small but choice and highly-interesting group of Orchids, among which we noted *Oncidium fuscatum* var. *pallidum*, and a curious creamy-white-flowered *Catasetum* named *C. Senra*, to which a botanical commendation was awarded. A plant of the new *Masdevallia macrura* bore a solitary, brown, long-tailed flower; also a good variety of *Odontoglossum maculatum* named *superbum*, and a splendid variety of *O. Cervantesi*, which obtained a first-class certificate under the name of *O. Cervantesi decorum*, the individual, soft rosy-brown-barred flowers being fully twice the size of those of *O. Cervantesi* proper. Mr. Dennis sent a profusely-flowered plant of *Dendrobium teretifolium*, having thong-like leaves 1 ft. long and slender-petalled, white flowers, the lip being curled involutely with fringed margins. Messrs. Osborn & Son contributed a well-grown group of Palms and *Aralias* suitable for dimple-table decoration; among them we noted *Aralia leptophylla*, *A. elegantissima*, *A. Veitchii*, *A. reticulata*, and others. The Palms consisted of *Thrinax elegans*, *Geonoma gracilis*, *Calamus leptospadix*, *Areca Verschoffii*, *Dæmonorops fissus*, *Euterpe edulis*, *Cocos Weddelliana*, &c. Mr. Terry, of Peterborough House, Fulham, showed a group of Orchids, among which were *Phalenopsis Schilleriana*, a remarkably small-flowered form of *Dendrobium nobile*, a well-flowered *Goodyera discolor*, *Oncidium serratum*, and *Coleogyne cristata*, all well bloomed. A collection of cut *Camellia* flowers came from Messrs. Veitch & Sons, who also exhibited a choice group of early-flowering and evergreen shrubs, among which we noted the yell-whish-green-flowered *Cornus Mas*; *Azara microphylla*, with glossy leaves and yellow buds; the white-flowered *Cerasus serrulata*; and the unrivalled *Grevillea rosmarinifolia*, one of the most distinct and effective of all early-flowering, hardy shrubs. Mr. C. Edwards, Hayes, Middlesex, exhibited a large-flowered variety of *Cyclamen persicum* named *compactum magnificum*, to which a first-class certificate was awarded.

Mr. Ollerhead, gardener to Sir H. Peck, Wimbledon House, Wimbledon, furnished four well-flowered plants of *Phalenopsis Schilleriana* and several *Dendrobiums* and *Vandas*. A splendid group of *Cyclamen persicum* came from Mr. James, of Isleworth, whose plants were alike remarkable for brilliancy of colour and excellent culture. With these came a dozen plants of *Cinerarias*, the flowers of which were large and shapely, and the habit excellent. Among them we noted crimson, blue, rose and white, maroon-purple, crimson and white, and violet varieties of great merit. Mr. John Willis contributed a large and well-arranged group of fine-foliaged and flowering plants, consisting of Palms, Ferns, Azaleas, Ericas, and Orchids of various kinds. Half-a-dozen large baskets of *Cyclamens* came from Mr. R. Clarke, of Twickenham, among which we noted crimson, pure white, and white and lilac varieties, all excellent for decorative purposes. Mr. Charles Noble, of Bagshot, sent specimens of the golden variegated *Thujopsis borealis* in excellent condition; and a large group of miscellaneous decorative plants was contributed by Mr. Charles Turner, of Slough. Mr. Lee, of Clevedon, sent cut specimens of his new Violet Prince Consort, which bears very large, deep, violet-blue flowers on long stout stalks, which render them valuable in a cut state. This variety may be described as being a slight improvement on Violet Victoria Regina sent out some years ago by the same raiser. Mr. R. Dean showed a charming group of early flowering seedling Primroses, all in good condition, considering the earliness of the season; among them we noted *Rosy Morn*, having bold, crimson-purple, yellow-eyed flowers of good form and substance; *Fairy Queen*, white; *Sulphurata*, soft yellow; *Brilliant*, crimson velvet; *Altaica*, soft lilac, large flower; *Virginia*, white; *Sunrise*, bright crimson; and others. With these came well-flowered pot plants of Violet Victoria Regina, the large, richly-coloured flowers of which are borne on long, stout stalks, and on that account admirably adapted for cutting and for bouquets. From Mr. Aldous, florist, of Gloucester Road, South Kensington, came a miscellaneous collection of *Cyclamens*, *Cinerarias*, Ferns, Palms, and other decorative plants.

Fruit.—Mr. J. Forl, gardener to Mr. W. E. Hubbard, Leonardslee, Hørsham, sent a remarkable collection of fruit, consisting of thirty-three dishes of Apples and six dishes of Pears. Among the Apples we noted *Royal Russet*, Wellington, also the same variety from sandy soil over sandstone rock, much more highly coloured but smaller, *Adams Pearmain*, *Scarlet Pearmain*, *Court Pendu Plat* (very highly coloured), *Alfriston* (very large specimens), *Minchall Crab* (well known as one of the latest of all Apples), *Cockle Pippin* (very good), *Cider House* (a handsome, rosy fruit), *French Crab*, London or *Five-crowned Pippin*, *Winter Nonesuch*, *Cornish Gilliflower* (rather small but of high colour), *Blenheim Orange*, *Hony Morning* (highly coloured), *Red Streak*, *Winter Pearmain*, and others. The Pears consisted of *Beurré Rance*, *Beurré Berkans*, *Josephine de Malines*, *Uvedale's St. Germain*, and *Easter Beurré*. Mr. Joshua Atkins, Lockinge Gardens, Wantage, sent two excellent clusters of *Black Alicante Grapes*; and specimens of *Ord's Apple* came from the Society's gardens at Chiswick. Mr. Harrison Weir sent a cluster of *Mrs. Pince's Black Muscat Grape*, well coloured; Mr. James Batters, of Chilworth Manor Gardens, sent a basket of Mushrooms and a well-grown dish of *Snowflake Potatoes*; white and purple-topped varieties of *Seakale* came from Messrs. Stuart & Mein, Kelso.

NOTES AND QUESTIONS—VARIOUS.

Iris.—I have not yet bloomed the varieties of *Iris Kempferi*, but a plan of the normal variety at Kew last June was one of the most gorgeous hardy flowers which I ever saw—it was labelled *Iris longicata*; but unfortunately that is not an infallible reference. I have not yet bloomed *Iris stylosa*, but a large plant of it in full flower at Ware's seemed to me as delicate as a *Cattleya*. Plant this *Iris* among *Helleborus giganteus* in a quarter protected from the winds of March and April, and you will be well rewarded.—FRANK MILLS, *Bingham*.

Clematis indivisa lobata.—This is an excellent climber for a greenhouse, especially just now, when it is covered with flowers, which will also be found very useful for cutting. It grows freely, blooms profusely, and lasts a considerable time in perfection. Soil that would suit *Camellias* will also do for this *Clematis*; it should be supplied with liquid manure during the growing season.—A. H., *Thorpe-by*.

Salvia splendens miniata.—This is the best of all the varieties of *S. splendens*. Its habit of growth is compact and short-jointed; its leaves are smaller and darker green than those of the type, and they are more heart-shaped. It is a very free-flowering plant, and one which throws out a number of spikes at one time of the brightest scarlet; even in the case of small plants it flowers very freely.—R. H. B.

Echeveria secunda glauca Injured by Damp.—This is much more liable to injury from excess of moisture during winter than from frost. With us it stands the sharpest frost we get if on a dry elevated mound or bank, but on level beds it rots away during such a winter as the present, when rain is the rule and frost the exception.—J. GROOM, *Henham*.

Arbutus magnifica.—We have here several varieties of the *Arbutus*; but amongst them the most ornamental is one called *A. magnifica*, a truly handsome fruit-bearing shrub, but one which I cannot remember having seen anywhere else. It grows from 20 ft. to 30 ft. in height, its leaves are shining green, the flowers white, drooping, and bell-shaped, and the fruit, when fully matured, the very counterpart of an ordinary-sized highly coloured, ripe Strawberry. Trees of the size just named covered with drooping fruit similar to that described have an attractive appearance on a December day; while for Christmas-tide decorations no other berried tree or plant of any description can be so all compared with them.—A. B. YORGE.

No. 275.]

SATURDAY, FEBRUARY 24, 1877.

[Vol. XI.]

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

WILD FLOWERS ABOUT ROME.

ROME just comes within the zone of perpetual vegetation; Florence, scarcely 200 miles to the north, though with its Aconites, Anemones, and Tulips, may perhaps have a more brilliant early spring, yet it has also six weeks or two months of midwinter, during which there are no wild flowers at all; whereas at Rome, from January 1 to December 31, go out when you will, you will be sure of finding more than one plant in actual bloom. Many of our New Year's flowers are those common to the English spring, several small kinds of Veronica, a few Dead Nettles, Celandine, Fumitory, Ajuga, &c. I need not remind any visitor to Rome of the Violets, which all through the winter are to be found in such abundance in the Villa Pamphili Doria, nor of the Anemones, both the garden *A. coronaria* and the purple *stellata*, which carpet the meadow in front of the Casino. But there are other flowers unknown in England which, taken as a group, are, I believe, enough to distinguish the flora of Rome from that of every other place in the world. Our commonest flower, though marked in the books as found all through the Mediterranean region, grows neither at Florence nor Naples, while within a narrow circle round Rome it is universal: this is *Diplotaxis erucoides*, a Crucifer allied to the English cornfield Charlock, but with a white flower more or less tinged with purple. All through the winter the Vineyards are white with it, and though cartloads of the plant are brought into the city daily as fodder for cattle, there is always a sufficient quantity left to supply any number of cheap bouquets to throw about in Carnival time. Along with it blooms the Marigold (*Calendula officinalis*), a plant which, wherever the traveller from the north finds it, assures him that he has left the region of bitter cold for one in which the sun never loses its power. Another plant (which, though found elsewhere, as in the warm south-east corner of France, is nowhere so abundant as it is here), is *Erodium romanum*, a species closely allied to the common Crane's-bill, but distinguished from it not only by the time of flowering, but also by being stemless, and sending forth its flower-stalks immediately from the root. Its clear, pale pink flowers of considerable size, together with its winter blooming, would almost recommend it for cultivation, but for certain faults of habit; the flowers open separately, or never more than two at a time, and the petals are so easily shaken off that it is almost impossible to gather the flower. In the herbarium the petals almost always detach themselves from the stalk while the plant is being dried.

A starveling Daisy sometimes ventures to push up its head in a mild December in England, but here Daisies are really what Shelley describes them to be—

Pearled Arcturi of the earth,
The constellated flowers that never set.

And we have two others along with the common kind—*Bellis sylvestris*, with a tall stalk sometimes quite 1 ft. high, which, in spite of its specific name, studs the most open and barren parts of the Campagna from autumn to spring with its pink and white blossoms; and *Bellis annua*, which, in the first days of January, spreads a sheet of starchy little flowers over the damp, sandy spots which occur but too often in the neighbourhood of Rome. With it, or in the low fallows, is found *Anthemis fuscata*, a near relation of the common Chamomile, and, like it, with strongly aromatic flowers. This plant also is characteristic of the Roman flora, as its northern limit seems to be Orbetello, in the extreme south of Tuscany. Another plant which is now in bloom should be mentioned, because it is in itself extremely graceful, and is at the same time a distinctive feature in the flora of South Italy: this is *Sonchus tenerrimus*, one of the despised family of Sow-thistles, but as different from the clumsy weeds we know in England as the sun of Italy

is from that of the north. It has an abundance of slightly glaucous, slender-winged leaves, with yellow flowers in which there is nothing remarkable, but its elegant mode of growth, and the posts of vantage which it takes up, render it specially noticeable. It leans out from a niche in an old wall as if to contrast its luxuriance of growth and intricacy of outline with the crumbling and degraded ruin from which it hangs; or it springs in full vigour of life from some little crevice where there seems scarcely a root-hold, to prove the power of southern light and air which, almost alone and without help from the earth, call forth such intense and overflowing vitality. Here in Rome, indeed, it cannot be said to display its full character—there is still something of a chill in the air which depresses its energy of life; but at Messina or Palermo you see it bursting from every nook and cranny, and adjusting itself to every strange position into which the wind has carried its seed, with unflinching grace and effect.

I will mention one more curious plant, which is found in the yellow sands which cap the low Miocene hills on the right bank of the Tiber: this is *Allium Chamæmoly*, quite unlike all other Garlicks in its outward appearance, but recognizable at once by the peculiar strong odour which marks all the genus. It pushes up three narrow, lanceolate leaves which lie flat upon the ground, and between them, just peeping above the surface, is the umbel of little white flowers, what stalk it has being quite subterraneous and never rising higher than at first. This is a way of growth which is not uncommon among Cape bulbs, but I do not know that there is another example of it in Europe. At the Cape of Good Hope the plants seem to try to hide themselves as far as they can to escape the heat and drought; this little winter plant perhaps tries by the same device to shelter itself from the cold. However this may be, *Allium Chamæmoly* is an illustration of Darwin's dictum that Nature is always working towards extremes.

EDWARD ARMITAGE.

GROWING RARE HARDY PLANTS.

I AM glad to see Mr. Miles coming prominently forward as an enthusiastic cultivator of plants. Nevertheless, will he permit me to offer a few remarks upon his article (see p. 121) about growing rare hardy plants? Though his plants seem to be at their best, yet I think it might be just as good or even better to plant the bulbs of *Calochorti* and others right in the soil, and to put the sand and cinders beneath the vegetable soil rather than above it; it is a principle generally adopted to imitate natural conditions as nearly as possible, in order to bring plants to perfection in our sometimes very adverse climate. As far as I know, *Calochorti* grow in their native places in strong, loamy soil, lie dormant during the dry season (that is, from July to October), grow underground from October to March, and then rapidly appear among floods from melting snow and rain, and complete their growth amid spring weather, dying down under the hot sun of the far West. Of course, in our changeable climate we may adopt different means to grow and preserve them. I have grown these plants for many years, and I am convinced that in order to have good blooming bulbs, they must be constantly renewed from seed. If once allowed to ripen seed, they die away, either in the same or following year. They may be induced to last longer if the seed-pods be picked off immediately after flowering, but I have found that the same bulb will never be as good as it was before it bloomed. I grow them in pits, well drained with some 4 in. or 5 in. of broken bricks, and on these a layer of sand. In winter they are protected from frost by a frame and coverings, and in autumn they are kept dry by the same means; while from April to July they are exposed to all weathers. The seed should be sown as soon as it is ripe; it germinates in the following spring, and the small bulblets are planted in October in beds or pits as above described. There they ought to remain undisturbed till they flower, which they will do in the third year. Even in the climate of England, which is far more suitable for the growth of half-hardy plants than ours, such pits would be found to be useful for amateurs, inasmuch as by means of them we are at once enabled to keep our pots from frost or rain just as may be required. Every year I add some decomposed manure and a little old mortar rubbish to the soil, and use the same beds for many years. Even *Bletia hyacinthina* I grow in such beds, and it flowers with me every year. The soil used is one-third common garden-soil, one-third leaf-mould and peat, one-third decomposed cow-manure, loam, and sand, to which is added a little old mortar, as many bulbs are fond of chalky matter.

Baden Baden.

MAX LEICHLIN.

CHRYSANTHEMUM CUTTINGS.

I WANTED a stock of Chrysanthemums, and not having any of my own I naturally looked about to ascertain how I could get them at the least cost. In last week's number of THE GARDEN (see p. 123) I noticed some useful remarks on the subject by Mr. Margetts, of Lyddington, in this county, but I take exception to his preference for purchasing plants in April to getting cuttings from the nurseries in winter. The former may occasion the least trouble; but is anything gained by it on the score of economy? I think not. Early in January I received from a friend residing a long way off, and by a two days' post, a small packet of cuttings, three-fifths of which are now doing well. Two of the sorts I found this morning (Feb. 19) required re-potting, and I had the curiosity to measure the length of the longest root, and found that when shaken out it measured exactly 10 in. from the heel of the cutting to the extremity. I also obtained about the same time a dozen cuttings from Mrs. Dixon, of 34, Moorgate-street. Some of them were very small, and to my inexperienced eye looked most unpromising, but I planted the lot with great care, and now more than half will certainly make good plants. In the treatment of these cuttings I was guided by the directions given in a December number of THE GARDEN; they are placed under bell-glasses, the pots standing on slates, with a layer of Cocoa-nut fibre and silver sand, kept moist between the slates and the bottom of the pots. The glasses, each of which covers three pots, were removed daily at first for about an hour, but now those that have not yet been re-potted and removed remain uncovered the whole of the day. They stand in a warmed but thoroughly ventilated greenhouse, the back shutters of which are left open even at night when frost is not apprehended. Of the variety named Mrs. Dixon, stated to be "the finest yellow in cultivation," the three sent are in full vigour. Had they been plants when I received them instead of cuttings, they would certainly have been charged double the price, and I doubt if the risk of transit after the cuttings have been rooted exceeds very much that of those sent out at an earlier period in an unrooted state. If the nurserymen, when sending them out, would always make a point of withholding any cuttings that are not likely to strike, I believe there would be very few failures among them when properly treated by the purchaser, and there is always some satisfaction afforded to the amateur in raising his own plants. I found the moistened mixture of sand and Cocoa-nut fibre very useful between the bottoms of the pots and the slates on which they rested. Under one of the pots 4 in. of root protruding from the hole had worked into this medium, and not a fibre was lost in re-potting the plant. The tendency to emit roots is so strong in the stalk of the Chrysanthemum that any one who does not mind the trouble of raising it from cuttings will find it worth his while, when in want of new varieties, to get them in that form in winter rather than wait till April for rooted plants. Nevertheless, Mr. Margetts deserves our thanks for giving us his experience in growing the Chrysanthemum, in which he appears to have met with great success.

Rutland.

B. S.

CRINUM AMABILE IN THE SUB-TROPICAL GARDEN.

Now that sub-tropical gardening has become so fashionable, and plants of noble aspect are in request to carry out a form of embellishment so justly admired, the *Crinum amabile* should not be lost sight of, for not only is it most valuable for outdoor decoration during the summer to place in the centres of beds, or for plunging in certain positions to stand out in bold relief as single specimens, or in grouping among others of similar character, but when seen in the stove with its huge heads of Lily-like flowers, it is, indeed, a grand object, and one which produces a striking effect. To those unacquainted with this noble plant, some idea may be formed of its size and appearance when it is stated that an ordinary-sized bulb measures over 2 ft. in circumference, and has a thick, fleshy stem gradually tapering up from 12 in. to 18 in. high, with thick, broad leaves at least 3 ft. long, that spread out elegantly in every direction and droop in a very graceful manner. The flower-stem starts out from the upper part of the neck of the

bulb just below the leaves, and is generally about 3 ft. long and large in proportion, bearing from twenty to thirty blooms of a rosy-purple colour, and in form much like the well-known Jacobean Lily. Although not very lasting, they open a few at a time, and are most useful for cutting singly to associate with others, with a few sprays of Fern arranged on bright green Moss in low dishes in the same way that Orchids, single blooms of Eucharis, and other choice subjects of that description are generally shown. To grow the *Crinum amabile* well, it must have plenty of pot-room and good, rich soil, such as a strong fibry loam chopped up and used in a moderately rough state, about one-eighth of its bulk of well-rotted manure, and just sufficient sharp sand to keep the whole open and porous. Owing to the great quantity of water required when the plant is making rapid growth or is sending up flowers, it is very important that the drainage should be efficient, otherwise the ball will become sodden and sour, and, instead of healthy roots, they will rot away. As a rule, all plants that have such large, fleshy feeders, besides being exceedingly fond of plenty of water at certain seasons, require the soil to be loose that they may ramify freely in it, and the *Crinum* is no exception to this. In potting, the turfy loam should therefore be placed somewhat lightly around the ball and not be pressed firmly together, as is usual in the treatment of most other plants. The rapid rate of growth of this and the number of large fleshy roots it forms render it necessary to employ rather a large-sized pot, especially if the object be to get fine leaves as well as flowers, in which case a smaller size than 18 in. ought not to be used, and even then it should be freely assisted with plenty of clear liquid manure as soon as it gets at all pot-bound.

Although a native of the East Indies, the *Crinum amabile* does not require strong heat, as it will succeed well in an ordinary stove, and may be wintered in a temperature as low as from 50° to 55°, if kept tolerably dry at the roots. One great advantage in growing plants of this description is, that they are serviceable at all times, either when in or out of bloom, and the exposure they get, when doing duty in the flower garden or other position in the open air, is just the treatment many of them require in order to get them thoroughly ripened and in a fit condition to produce their flowers in a free manner when housed. Whether used for outdoor work or not, full exposure to the sun is one of the first requisites if a free-blooming habit be desired, and to aid in this, water should be given less frequently after the plant has completed its growth. The slow rate of increase of *Crinum amabile* makes it somewhat dear to purchase, as it can only be propagated by the offsets it sends up so sparingly at the base of the bulb. These should be allowed to remain till they have emitted a few roots, when they may be removed with safety if the operation be conducted in a careful manner so as not to bruise or injure the base of the thick, fleshy stem. When severed from the old plant, it is best to allow this part to get a little dry and healed before potting, by letting it lie exposed in the stove for a few hours, as there is more danger of losing them from decay than in any other way. The large, sappy stem will contain sufficient moisture to sustain it till it gets fairly hold of the soil, or till such time as the bare part at the base has healed over, when by giving a little water it will soon start into growth. The proper time to remove these offsets is early in spring just as the plant is forming fresh leaves, when they are sure to succeed if potted in very small, well-drained pots in sharp, sandy soil, and afterwards plunged in a brisk bottom-heat where they can be kept well up to the light, which is essential for their well-being at all seasons.

S. J.

Culture of *Sparaxis pulcherrima*.—I have not yet grown this grand plant well. We are all fond of talking of our successes, but I should never cease talking if I once began on my failures. At Messrs. Backhouse's nursery at York, this plant and its deep maroon variety (*S. p. atropurpurea*) grow fully 4 ft. high, and flower in profusion on a rather sandy, warm soil. It is easily raised from seed, and I have seedlings only two years old which will probably bloom during the summer. Messrs. Barr and Sugden tried the experiment of leaving *Ixia*s out on raised beds without protection in winter. I wish they would let us know the result. I have a raised bed in the open ground

of *Ixia* and *Sparaxis*, and they are growing well, but this winter is a very exceptional one. At Mr. Ware's I saw a bed of the *Ixia* called Wonder in full flower, but the frost seemed to have severely damaged the leaves.—FRANK MILES, *Bingham*.

GOLD-LACED POLYANTHUSES.

INQUIRIES are constantly being made as to the sources whence some of the fine old-named Gold-laced Polyanthuses can be obtained. The fact is, it is very difficult indeed to obtain them, and so scarce have they become, that on the occasion of the annual exhibition of the National Auricula Society, in no class was more than a couple of plants required. A pair of dissimilar varieties brings but a small competition, and the leading flowers are Cheshire Favourite (Sanders), Earl of Lincoln (Hulton), Exile (Coishaw), Lancer, and Kingfisher (Addis), and George the Fourth (Buck). I have made many attempts to gather together a collection of these Polyanthuses, and I have Lancer, dark; Cheshire Favourite, red; and Hilton's President, dark red; but beyond these I cannot as yet proceed. I am particularly desirous of obtaining Exile, Earl of Lincoln, and George the Fourth. As some may be disposed to ask why these varieties are not more plentiful, my reply is, that they have been subjected to such a sweating system of culture, and divided so remorsefully, in order to obtain fresh plants, that their constitution appears to be greatly impaired. If one of them throw an offset, it is applied for on every hand, so many being anxious to obtain it. My plants were very small when I first received them, but now, by means of careful culture, they are gaining strength, and will shortly furnish offsets. Last spring, as soon as the plants had bloomed they were planted out in a cool east border, where they had some shade during hot weather. A good loam bed 12 in. in depth was made up with some decomposed cow manure and leaf-mould mixed with it, and the plants were pressed firmly into the soil after being turned out of the pots with all the soil adhering to them. They were well watered during dry weather, and they made good growth during the summer. At the end of August they were lifted, the soil was taken from their roots, which were examined, and the old part of the tap root cut away to within $\frac{1}{2}$ in. or so of the leaves, leaving, however, a good supply of fibrous roots. They were then re-potted in a good soil made up of loam, leaf-mould, decayed cow manure, and a little gravel sand, and were then placed in an Auricula frame. They have made vigorous growth, and will soon commence to throw up flower-stems; I therefore anticipate some good flowers and useful seeds. My Lancers in particular are looking remarkably well, and are throwing up strong offsets from the roots. If I were growing for exhibition it would be necessary to take these off in order to throw all the strength possible into the parent plant; but as I am not, the offsets will remain till planting-out time, by which time they will have grown into strong plants.

D.

Myosotis dissitiflora and the Rain.—Mr. Fish's experience of the effects of the long-continued rains upon this early Forget-me-Not differs entirely from mine this season, as I never had it in finer or healthier condition. Some years since I found it necessary to differ from Mr. Fish as regards the superiority of seedling plants over those propagated from the old ones, and I still believe that seedling plants are, as a rule, the most trustworthy. Last year, because of the almost entire failure of the seed crop, I had to produce a stock of plants from the old stools, and in September these were lifted, pulled to pieces, and the rooted shoots dibbled out in large beds to the extent of many hundreds. I do not think that 5 per cent. of the whole have died, and in one bed of about 600 plants not one is missing, and just now all are covered with bloom-heads bursting into flower, and ready to lift into 48-sized pots for decorative purposes. This *Myosotis*, in spite of its hardy character, is nevertheless somewhat difficult to cultivate freely in pots. If kept in a dry, warm temperature it is soon smothered with green fly, and if kept in cold frames it is very subject to damp and to rotting in the centre of the plants. Because of these possible evils I do not lift into pots until the bloom-buds are well developed, and this should be done upon a dry day, and water should be given carefully at the side of the plant and not in the centre. Under glass they soon come into flower, and when once fairly in bloom there is no danger to be apprehended from damp. It is still one of the most beautiful and earliest of all hardy bedding plants, and, when grown in masses in contrast to other colours, has no equal.—A. D.

The Edelweiss.—The idea that this plant is difficult to cultivate has probably arisen from its appearance when at rest. In autumn it dies down to a small bud which lies dormant during winter, and in this state it looks as if entirely dead, no trace of life being visible to the inexperienced. The consequence is the plant gets

thrown away or eradicated. If planted in rich soil it does not look so pretty as it otherwise would do, because it grows more vigorously, and the down is washed away by the incessant rains, so much so that by such treatment the production of down on the leaves ceases entirely. In its natural habitat I always found the finest patches at places where they were protected by overhanging rocks, and where they seldom got rain, but were protected by snow in winter, the snow being driven on them by wind. It is moreover a fact that where birds regularly roost, the plants get finer and stronger than elsewhere, and under cultivation I have seen a sprinkling of pigeon's manure induce this plant to produce very large flowers.—MAX LEICHTLIN, *Baden Baden*.

St. Bruno's Lilies.—How few people grow or even know St. Bruno's Lily (*Anthericum Liliastrum*)! It is exactly like the White Lily in miniature, growing late in the spring months $1\frac{1}{2}$ ft. to 2 ft. high, and flowering profusely. A large and fine variety was figured last year in THE GARDEN (see p. 12, Vol. IX.). *Anthericum Liliago* is another lovely plant for the herbaceous border, with star-like flowers on thin, bending stems. The variety sold as *A. Renanii* is much finer in growth and flower, being fully 3 ft. high. *Anthericum ramosum* I am delighted with; it bears pendent stars on small stems, and is tall and tender in form, but quite able to take care of itself in the borders. All do best in turfy loam.—FRANK MILES.

Drying off Bulbous Plants.—I agree with Mr. Groom (see p. 121) that this is a bad practice. Nature and reason alike show it to be wrong, and this more especially in the case of those plants which are natives of temperate and northern climates, and which "rest" during the cold or winter season, a time during which they receive more moisture than when they are making their growth. The truth is that very few bulbs, if we except those in the most arid regions, really do rest after the foliage dies down, but go on rooting and developing buds or offsets ready for next year's growth and bloom. This is especially the case with Lilies, Irises, Crocuses, and many other bulbs which are actually injured by being dried off during the winter, although taking them up carefully and re-planting them in fresh soil may, under certain circumstances, be necessary and even beneficial. Because Hyacinths, Lilies, Tulips, and other bulbs are dried off by Dutch and other bulb-growers for the conveniences of trade, many cultivators have concluded that such treatment is a necessary part of bulb culture; on the contrary, however, it is a most pernicious practice. Lilies especially root freely in all directions, and distend their scales and buds all through the most severe winter weather, if planted in porous, well-drained soils; and to stop this growth paralyses, and in some instances actually kills the bulbs. The best way with hardy bulbs is to plant in rich, well-prepared soils on a well-drained bottom, give abundance of moisture, and never take them up unless it be to re-plant them in better soil immediately. If this practice were followed, we should then have fewer failures in bulb culture than we now have.—B.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Roman Hyacinths.—These planted in open borders fully maintain their early habit of flowering; they are now (Feb. 8) in full bloom. In sheltered positions they will form interesting additions to the spring garden as companions to the several varieties of Crocuses.—J. G.

—Is your correspondent Mr. Danning sure that his Roman Hyacinths really rot when left in the ground? I have now a small patch in bloom which has been dormant for four years. I believe this Hyacinth is a distinct species, and rightly named *Hyacinthus precox*.—H. HARPER CRAWE.

Verbenas treated as Annuals.—From what I read in THE GARDEN in the early part of last year respecting Verbenas treated in this way, I at once sent for seeds which in due time were sown on a well-prepared bed, but not a single plant came up. Had I not sown some of the same seed in pans, I should not doubt have blamed the seed, but I could not do that, inasmuch as nearly all of it sown in that way came up. I had, therefore, plants sufficient for my bed, a circumstance which somewhat mitigated my disappointment.—E. MILLER, *Old Sneyd Park, near Bristol*.

—Like "H. M." (see p. 125) I adopted the suggestion respecting the raising of seedlings, but I sowed the seed in shallow pans, pricked off the seedlings into boxes, and finally put them into beds in May. Under this treatment they proved satisfactory, producing a great variety of colours, and exceptionally strong plants. To sow such small seeds where they are to grow permanently would be anything but a saving of labour, and in the majority of cases would prove a failure.—J. GROOM, *Henham*.

Forming a Rose Garden.—In answer to Mr. Gilbert (see p. 103) allow me to say that I have found that Briers, planted where they are intended to remain and worked afterwards, will last much longer than trees obtained from a nursery, as nurserymen too often plant mere sticks which never make good roots; under such circumstances they yield a few blooms, and the second or third year disappear. From what I have seen in this neighbourhood and elsewhere of seedling Briers, I would strongly recommend them on account of their health and strength. If I had to make a Rosery I should certainly plant it either with seedling Briers to bud, or with trees already budded on that stock.—W. DIVES, *Winton*.

NOTES OF THE WEEK.

A GOOD BEGINNING.—Many of the ugly flower-beds, under the crowded trees by Piccadilly, are now being turfed over. It would be no loss but a great gain to gardening if ten out of every twelve "flower-beds" in the United Kingdom and in Europe were also turfed over.

A LARGE PAMPAS GRASS.—We have received from Mr. J. F. Marsh, of Hardwick House, Chepstow, a photograph representing a very fine specimen of this noble ornamental Grass. It measures 12 ft. in height, and upwards of 14 ft. in diameter, and bears silvery plumes in profusion and of unusually large size.

THE PEARL-BUD SPIREA (Exochorda grandiflora).—The plate in our present number was drawn by Mrs. Duffield from a fine specimen in Mrs. Harrison's garden at Weybridge Heath. This beautiful shrub flourishes freely round London, and deserves a place in every garden.

ONCIDIUM SPLENDIDUM.—Small plants of this new *Oncidium* are now flowering freely in Messrs. Veitch's nursery at Chelsea. Its sepals and petals are beautifully marked, and the lip, which is large and flat, is of a rich clear yellow colour. When more plentiful, this *Oncidium*, the flowers of which are large and showy, will doubtless find a place in every collection.—S.

THE SKUNK CABBAGE (Symplocarpus foetidus).—This curious plant (for specimens of which we are indebted to Mr. Ware, of Tottenham) is now in bloom, and its bronzy-purple cowl, marbled with green, are not without beauty when closely examined. Its leaves, which develop later, are very large. It is worthy of a place in the wild garden, and thrives in moist, deep soil.

THE CITY OF PARIS NURSERY GARDEN.—It having been several times reported that this was removed to the Bois de Boulogne, it may be as well to state that it is in complete working order in its old position—La Mnette, Avenue d'Eylau. It contains a fine collection of plants, and various large houses devoted to popular classes of plants, such as Camellias, Ferns, Palms, &c. A great deal of glass is devoted to the production of plants for the summer decoration of the parks and squares.

EARLY FLOWERS IN BUCKINGHAMSHIRE.—I have had *Crocus Imperati* in flower here since Christmas, and a beautiful bed it makes, the interior of the blossoms being violet-purple of the most lovely description, and the outside fawn striped with purple. The different kinds of *Hellebore* have also done well this season. *Iris reticulata* is likewise in charming condition, and so is *Scilla bifolia*. Altogether this has been a favourable season for early flowering plants.—J.M., *Windsour*.

A CEMETERY CONSERVATORY.—We have received photographs of the interior of the conservatory chapel in Forest Hill Cemetery, Utica, New York. In this cemetery the excellent idea of a conservatory chapel, full of flowers and fine-leaved plants, has been carried out successfully. We should have engraved one of the views were it not that the beams and other supports are as yet too predominant, as compared with the vegetation.

CYPRIPEDIUM ROEZLI.—For continuous blooming few of the *Lady's Slippers* equal this. Large plants of it in Mr. Day's collection at Tottenham have for the last two months been well furnished with strong flower-spikes 3 ft. or 4 ft. in length, and thickly beset with soft, delicately-tinted blossoms; the spikes, which keep on growing, produce blooms at their extremities, and thus last in good condition for a longer period than other varieties. The plants in question are still throwing up new flower-stems, and will be attractive for some time to come.—J.

PELARGONIUM ROSEUM MULTIFLORUM.—This comparatively new *Pelargonium* is doubtless a good step in advance of other early-flowering varieties, inasmuch as the plant assumes a more dwarf and compact habit of growth, and is far more floriferous than the kinds usually employed for forcing. The blooms, too, are large and of good colour.—C.

NEW MODE OF HEATING.—Mr. Cannell, of Swanley, who has recently erected several new houses in his nursery there, has had them heated on quite a new method. Instead of the pipes running along the sides of the houses low down, as is generally the case, they are placed close up to the glass. Small hot-water pipes are also distributed about the roof, a plan of heating which has proved advantageous this wet season, inasmuch as the foliage of the plants has been kept free from damp without an unnecessary amount of heating power being used. Whether, however, this system be right or wrong, the plants subjected to it appear to thrive, the whole of the stock being exceptionally vigorous and healthy.—S.

DOUBLE PRIMULAS AT ST. JOHN'S WOOD.—The *Primula-house* in the Wellington Nursery is now very attractive, containing, as it does, hundreds of stocky plants, loaded with large double and semi-double blossoms of nearly all shades of colours. Some of the white kinds are especially attractive, the blooms being as large and double as those of a *Carnation*. Plants of these should be largely grown for conservatory decoration, especially such kinds as *Princess of Wales* (white), *Emperor* (dark purple), and *Miss Eva Fish*.—S.

CARNATION AND PICOTEE SOCIETY.—We have received a copy of the proposed schedule of the *Carnation and Picotee Show* which is to be held in London in July next. There are ten classes, and the value of the prizes range from 70s. downwards. A list of supporters is appended, showing that upwards of £40 has already been subscribed, but further aid is solicited by the secretary Mr. E. S. Dodwell, 11, Chatham Terrace, Larkhall Rise, Clapham.

ODONTOGLOSSUM ANDERSONI.—A plant of this comparatively rare *Orchid* growing in one of the houses at Gunnersbury is now bearing a strong spike of bloom furnished with fifty-seven large, sweet-scented, and beautifully-marked blossoms. This is decidedly the largest and best flowered spike of this *Odontoglossum* which I have yet seen.—S.

VARIEGATED FIGUS.—Messrs. F. & A. Smith have now growing in their nursery, at Dulwich, a new *Ficus*, which will no doubt prove a good companion to the well-known *India-rubber Plant*. In habit the two are a good deal alike, but the leaves of the new kind are produced more closely together than those of *F. elastica*, and are beautifully blotched with pale yellow. Established plants of it are expected to be even more effective as regards colour than those in a young state.—S.

THE BEST PEARS AND APPLES NOW IN SEASON.—By far the best Pears now purchasable in the London market is the *Easter Beurré*, sent all the way from California, and this year in greater abundance than before. They come without packing material (beyond one thickness of slight brown paper round each fruit), in boxes 20 in. long, 12 in. wide, and 9 in. deep. Curiously enough, they are seldom bruised when thus sent, though parts are often a little flattened. The fruit is much more unequal in quality than that sent during previous years. The differences shown are no doubt traceable to the wide variation of the climate of California. The best Apple and the only one now worth eating as a dessert fruit is the *Newtown Pippin*, which has been in use for the last four months.—P.

CAMELLIAS AT DULWICH.—The *Camellias* in Messrs. F. & A. Smith's nursery here are just now finely in bloom. They consist of many hundreds of bushes of nearly every known variety planted out in beds. Amongst the best may be named *Mathottiana*, a kind with very large scarlet blossoms; *Duchess of Northumberland*, white with carmine stripes; and the beautiful white, fringed *Fimbriata*, a variety in its way as yet unsurpassed. This collection also contains a new seedling as yet unnamed, but which is to all appearance a distinct and valuable sort. Its flowers, which are bright pink edged with white, are so full of petals as to form a perfect cone; the foliage, too, is large and fine, a matter not to be lost sight of when selecting *Camellias* for planting out in conservatories.—J.

HELLEBORUS COLCHICUS.—This variety of *Christmas Rose* is now finely in bloom in Messrs. Henderson's nursery. It is a spring-flowering kind, the blooms of which are of a drooping character, and of a dark purple colour with a cluster of white stamens in the centre. They are produced on long stems, and are therefore very useful for cutting, a condition in which they last for a long time, and are valuable either in vases or bouquets early in the year; they may be gathered from the end of February until the middle of April.—J. T.

SMITH'S CINERARIAS.—The *Cinerarias* in Messrs. Smith's nursery at Dulwich are just now in full bloom and well worth seeing. They are arranged in low span-roofed pits, 100 ft. in length and proportionately wide, and, as they may be counted by hundreds, they are strikingly showy. The flowers, which are large, are of good shape and bright in colour, scarcely two plants being alike. When in full bloom, plants bearing the best-coloured and best-shaped flowers are picked out and put away for another year's stock, the rest being allowed to seed. Any found with inferior blossoms are immediately thrown away to prevent them from fertilizing the others and thereby spoiling the "strain."—S. F.

EUSTON SQUARE.—This square, which has so long been in a disgraceful state, has at last been planted and arranged by Mr. Neal, of Wandsworth Common. Many fine *Weeping Ash* trees have been killed, owing to the quantity of rubbish heaped over their roots.

TREES AND SHRUBS.

A NEW BERRY-BEARING SHRUB.

(HYMENANTHERA CRASSIFOLIA).

THIS is a dwarf evergreen shrub, characterized by a much-branched and somewhat rigid habit, the slender branches being clothed with tufted or alternate leathery leaves, about $\frac{1}{2}$ in. or $\frac{3}{4}$ in. in length. The flowers, which are small and inconspicuous, are succeeded by thickly-set white berries, as shown in the annexed engraving, which represents a mere fragment of a well-grown pot specimen sent to THE GARDEN office by Messrs. Veitch & Sons during the past winter, at which time it was particularly attractive, forming a dense bush, say from 15 in. to 20 in. in height, one mass of leafy twigs, the bases of the branches, and even the thick old stems, being decorated with white berries, their colour being heightened by contrast with the ash-coloured bark, and still further by minute black dots on the fruits themselves. Both as a neat-growing, hardy shrub, and as a pot plant for cool greenhouse or conservatory decoration, this plant well merits extensive cultivation. It is a native of New Zealand, and is interesting as belonging to the Violet family, to which in external appearance it bears not the slightest resemblance. B.

Trees on which Mistletoe is found.—There appears to me to be a great many different opinions about this plant. A writer in "Cassell's Magazine" for December says that "popular opinion imagines the Mistletoe to be chiefly parasitic on Apple or Crab trees, whereas it is really very rare on these. We have collected the names of upwards of thirty trees, native and introduced, on which the Mistletoe has been found growing. Of these the Thorn is perhaps that most affected by it. It was on account of the rarity of the occurrence of the Mistletoe on the Apple tree, that the Druids gathered it from the Oak; and again, in a paper lying before me I find this sentence, "that it (the Mistletoe) will not grow on any other than Apple and Oak trees;" in reference to the first assertion I can say from personal observation that if any one can go into an orchard in any part of Herefordshire and not find Mistletoe growing on the majority of the Apple trees, it will be quite an exception to the general rule in that county, and anyone who makes a tour of the rivers Wye and Lugg will notice great masses of the sacred plant growing profusely on the Aspen Poplar tree. I have only seen it growing on the Apple, Aspen, and Oak trees, that is, in Herefordshire, Gloucestershire, Worcestershire, Monmouthshire, and Radnorshire. I never heard of it growing on the Thorn, but I suppose the writer means between Calais and Paris; and I was under the impression that the Druids venerated the Oak for its Mistletoe. Was the Apple or Crab known in Britain then? Will some of your readers give a list of the localities and names of the trees on which, and where the Mistletoe may be found? How is it there is no Oak or Mistletoe about Stonehenge or Avebury in Wiltshire?—C. E. B.

Evergreen Underwood.—I find most of the varieties of Box to be very serviceable as evergreen underwood, especially under deciduous trees. Some of the drooping variegated varieties are really beautiful in large clumps, and for decorative purposes I usually get our main supply from the woods, so that those in the shrubberies may be left undisturbed.—J. GROOM, *Henham*.

EXHAUSTIVE EFFECTS OF TREE ROOTS.

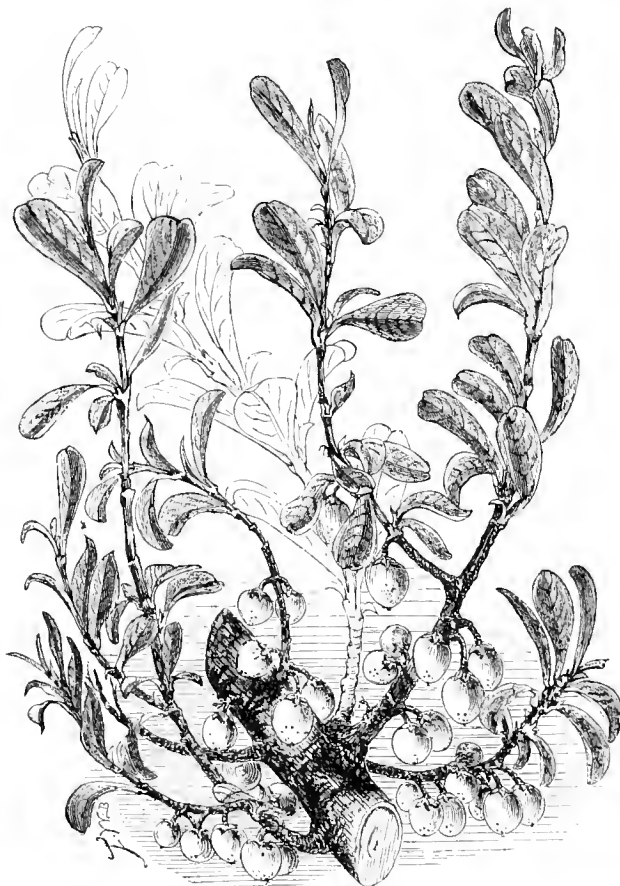
THE distance to which certain tree roots extend in cultivated grounds is a subject of some importance, as in many instances where they have originally been planted to provide shelter, or as screens to hide unsightly objects, they eventually become a great source of injury and annoyance, on account of the roots penetrating the ground and robbing it of the food intended for the use of culinary or other crops. The amount of injury thus inflicted is especially apparent during seasons of drought, and it is an evil not easily cured, as the removal of the trees would in some cases be considered a greater loss than the injury which they commit, so that half-measures have in most cases to be resorted to, such as cutting back as far as possible; but having once found a rich feeding ground, this only causes them to grow out hydra-headed and increase with tenfold vigour. The distance to which certain tree roots run should be taken into consideration when planting, for while the roots of many evergreens—the most serviceable as shelter trees—do not extend further from the base than

the height of the tree, others, especially those of the Ash and Elm, extend in light soils double the distance of their height: if fruit trees were such rapacious feeders, no profitable cultivation could be carried on in their vicinity. The custom of planting forest trees in hedgerows affords an illustration of the folly of attempting to grow one crop over another, for there cannot possibly be a good hedge in connection with them, as the trees naturally become masters of the situation; and as to timber, whoever saw hedgerow timber a century old worth the injury which it had done to surrounding crops? Indeed, scarcely one per cent. of trees planted in such positions ever attain timber size at all, for hedgerows being as a rule planted on elevated banks, the trees perish before they have a chance of becoming established. A writer in an American paper (see 85), in alluding to pasturing Apple orchards, gives some sound advice on double cropping; he says:—"Try one crop and pay attention to it, and you will have no cause to complain of results;" in like manner, where cultivated lands are undermined with gross-feeding tree roots, the most skilful cultivator will be unable to produce satisfactory crops. J. GROOM.

Henham.

Golden Ivies.—Can any of your readers inform me if there is a Golden Ivy in cultivation, with markings similar to that of the Golden Eonymus? There is a variety growing near here, which is termed golden, but the majority of the leaves are altogether green, and the others cream-coloured and striped. It is almost worthless. Is it the variety named *Hedera aurea variegata*? if so, an improvement on it would be desirable.—A. BOYD, *Slany Park, Wicklow*. [The merits of any particular variety of variegated Ivy can scarcely be determined by its habit and general appearance in any given place. The variety mentioned by Mr. Boyd is most likely *Hedera Helix aurea*, which is very good in some soils, but not so constant as *H. Helix aurea spectabilis*. The nearest approach in appearance to a Golden Eonymus is *H. Helix arborescens aurea*.—E. G. HENDERSON & SON.]

Effects of Trees on Temperature.—M. Faunal has communicated to the French Academy the results of a series of observations on the comparative influence of leafy and resinous trees on the temperature and ozonometric condition of a locality. Observations at an altitude of 50 ft. from the ground showed that trees of all kinds, in the processes of assimilation and transportation, produce a lowering of the temperature in the surrounding air; but this cooling effect is more marked with resinous trees than with others. Under the former the proportion of ozone appears to be uniformly less than at equal altitudes in the open ground around.



Hymenanthera crassifolia.

LETTUCES ALL THE YEAR ROUND.

To maintain a never-failing supply of good Lettuces, irrespective of variability and irregularity of season, is a somewhat severe test of the resources and ingenuity of the cultivator; in fact, he who can furnish a well-grown, juicy, crisp Lettuce every day in the year will not need to give a much better proof of capability in this branch of gardening. In moist, dripping summers the culture of such plants as the Lettuce is comparatively easy, and the required supply will come on in desired succession; but there are times, such as during the past summer, for instance, when ordinary calculations are entirely at fault. Hot, dry weather sets in suddenly, and as it often succeeds a showery period, it finds vegetation in a tender state, and is consequently apt to produce rather disastrous effects. Whole patches of plants will bolt, others become suddenly checked and crippled in their growth, and do not arrive at half their proper size; young plants do not progress favourably, and sowings do not start into growth as anticipated. The effect of this is that awkward blanks occur, and the supply will either quite fail or will be of the scantiest and poorest description. In places where special arrangements have been made for a copious supply of water, this inconvenience will not of course be experienced; but where such is not the case, and labour is at all short, a considerable amount of forethought and judgment must be brought to bear upon the culture of the Lettuce. For let it be understood I speak now of the production of a Lettuce firm, juicy, and succulent, such as may be bought in Parisian markets in the hottest weather in summer, and without which, as the French so well know, no salad worth eating can be made. A very rich, free soil, combined with copious and constant waterings, and great solar heat, enables the French cultivator to raise a large amount of produce from a small space. Lettuces, Radishes, and all kinds of salading grown under such circumstances are tender and full of juice; flabby, tough Lettuces, and hard, stringy Radishes are almost unknown in the Parisian markets.

In order to secure a supply of Lettuces all through the year, sowings must be made at certain periods, which periods, as well as the amount of seed sown, must be regulated by the time of year and requirements of the household. One of the most important points to be kept in remembrance is that a delay of a few days in the sowing of the seed will sometimes occasion a serious break in the supply: this is the more likely to occur in the summer months. About the beginning of February a sowing of the Paris White Cos should be made in gentle heat. The seed should be sown in shallow boxes, and, when up, removed to a cool frame, and if the young plants can be pricked out while there into a free soil, it will assist their development. This sowing will be found to be indispensable, as it comes in between the autumn-sown batch and the first outdoor sowing. Preparations should be made during this month, too, for planting out those which have passed the winter in cold frames; for this purpose as sheltered and warm a situation as possible should be chosen; a south border, for instance, where protection from the cold easterly winds which sometimes prevail in March and April is afforded to the young growth. If the soil be at all of a stiff, tenacious character, it should be thrown up into ridges, leaving the lumps as large as possible, and remain so for a time. Nothing benefits soils of this description so much as exposure in this manner to the air and frost, and it is indispensable for the quick growth of all tender vegetables that the soil in which they are planted should be of a very free nature. Lighter soils will not require this attention—digging over two or three times, choosing either frosty or dry, windy weather, will suffice. Old decomposed manure should be used, and be dug in with a four-tined fork and thoroughly broken and incorporated with the soil. Planting-out will depend upon the weather; it is as well not to commence this operation too early, for hard, inclement weather immediately succeeding necessitates their being protected, and they are apt to receive a check, which considerably retards their subsequent growth. The beginning of March will be found early enough, and if the plants be a moderate size, and have been kept dwarf and hardy they will be pretty well established before being called upon to make quick growth. The best way of planting them

I consider to be in drills, which can be easily drawn in the free, loose soil with a broad hoe. It sometimes happens that we have a dry season during April and May, when a watering or two becomes necessary, and when thus planted the water is more easily given, and less suffices—always important considerations. This batch of plants generally succeeds well and attains a good size, the above-named months being the most favourable time of year for them, and they are less liable to bolt. If, therefore, enough have been put out, they will afford a sufficient supply until those sown in February are ready. These latter, which will have commenced growing, and then been properly hardened off, can be planted out in April, being well watered, in the event of dry weather, until well established. At the beginning of March a sowing should be made in the open ground in a dry, sheltered spot; these should only be thinned out, leaving a portion at growing distances; these latter will be somewhat earlier than the transplanted ones in arriving at maturity. About the middle and latter end of the month other sowings should be made in the same manner, transplanting a portion, and leaving the rest for further growth. Any of the Cabbage varieties and White Cos may now be sown. By frequently sowing and employing various kinds there will be no danger of a deficiency in the supply. This method will apply to the next two months, as it is seldom that the weather is very hot and trying before June. During March, April, and May seed comes up well, and young plants thrive and come to maturity in a tolerably equable manner. The weather must, however, entirely regulate operations in this respect. If, therefore, either April or May should be dry, the water-pot must not be spared. The principal aim should be to keep the crop growing, not allowing a check to take place, for, when once that occurs, time is lost, size is sacrificed, and the quality is always inferior. This especially applies to leaves half or three parts grown, as such can never be made to regain their pristine crispness and juiciness if once they suffer from want of moisture. From a thoroughly well-grown Lettuce there is not much waste, but when indifferently grown the half, perhaps, of each head is sacrificed; it will therefore be easily seen how necessary good culture is for those who wish to economise time and labour. I would therefore again forcibly recommend the utmost attention to be paid to the preparation and enriching of the soil together with timely watering, without which no one can think of succeeding in Lettuce culture with any degree of certainty. June, July, and August are, as a rule, the most trying months for all that relates to salad vegetable cultivation. With the early crops situations are chosen which appear best adapted to their favourable growth. It is not always easy to localise crops, but when we arrive at the fair weather period this can in many cases be very well managed, and it will be found a better plan to save a piece of ground especially for this purpose, so that the successional sowings may be kept together. In all respects this is preferable to having them scattered about indiscriminately; the soil can be better prepared, and the relative size and proportionate progress of the successional sowings can be seen at a glance; one of the main things, too, is secured, viz., a ready facility for sowing the seed. When a piece of ground has to be found and prepared as required, it often happens that the work is delayed. It would be well, if it could be so arranged, that the Lettuce quarter were in the immediate vicinity of the water supply, but if this cannot be managed, they may be kept together, and watering will be much facilitated. During June and July seed should be sown about every ten days, and about August 10 there should be one sowing for autumn use. The last two or three sowings should be made in as exposed a situation as possible, as they will require all the light and sun they can get during the waning days of September and early part of October. Much labour may be saved if mulching be practised for the summer crops; in fact, without this aid it would be almost useless to attempt to grow good Lettuces in some seasons; manure is best if it can be had, if not, short Grass or litter of any kind. Although mulching is recognised as beneficial, and much is continually being urged in its favour, it has not yet been carried out so extensively in this country, and that more especially with respect to quick-growing crops, as it ought to be; indeed, so valuable is its agency, that in continued dry weather, and under a burning sun I have seen crops gathered in such perfection that would

almost appear incredible. Success in the growth of Lettuces during the summer months will therefore mainly consist in a deep, rich, free soil, and frequently in sowing with timely and thorough watering in hot weather and mulching.

And now a word as to sowing. I have found that the best way is to sow in drills, putting in a sufficient quantity of seed to ensure a plant and thin out to about 1 ft. apart in time to prevent them drawing and becoming weakly, and mulch when they have five or six fair-sized leaves. It is not advisable to put on the mulch too early, for if the weather be moist, it will harbour slugs, which will clear off in the seedling state the whole sowing in one or two nights. This disaster is in any case liable to occur, if preventive means be not adopted; this will consist in dressing the surface soil around them with soot and lime, which labour should never be grudged, as two purposes will thereby be served, viz., vermin held in check, and the crop manured. It is as well, too, in the earlier stages of growth to give the surface occasionally a stirring with the hoe; the benefit of this operation is too well known to need enforcing. It sometimes occurs in summer that when seed is on the point of germinating, a scorching day comes which dries up the seed before it is fairly through, which results in an entire loss of that sowing, or the ground being in a very dry, parched condition when sown, it refuses to come up at all, thus upsetting all calculation. If the seed has commenced to swell and then becomes dry, it will be very uncertain about its germination—it will either not come up at all, or will only come when the next period of wet weather arrives. This inconvenience is, I believe, of frequent occurrence, and to it may be attributed the want of salading which is so often felt towards the latter end of July and during August and September; it is, however, easy of remedy. If the ground be very dry, draw a drill quite 2 in. deep, thoroughly moisten it and sow the seed therein, immediately making the surface firm, give a watering, and cover the whole with some litter or old mats. The seed should be, however, previously prepared by soaking it in water some twenty-four hours before using; drain off the water and mix with it some dry sand, by which means it can be more conveniently sown. Attention must be paid to the first development, removing the covering upon the first appearance of the plants. If the weather be very hot at this time, it is as well to shade a little during the hottest portion of the day with a small quantity of Fern thinly scattered on them to keep off the scorching rays of the sun, but not sufficient to exclude the light. This may to many appear somewhat tedious, but it is absolutely necessary to ensure germination. About August 20, and then again towards the latter end of the month, some of the Black-seeded Bath Cos, in addition to the White Cos, should be sown, the former to be sheltered in frames, some portion to come in early in spring, and the rest to be planted out in March; again, about September 10 another sowing of Brown Cos may be made. Be sure to make these sowings in an open, sunny situation, and tolerably thin, as it is important that they should come dwarf and hardy. In September preparations must be made for insuring the winter supply. Frames, with an aspect fronting the south, are preferable for this purpose; they should lie as dry as possible, and the lights should be in good repair, to prevent damage from drip, damp being the greatest enemy to be guarded against at this season. Some of the White Cos or Cabbage kinds, that were sown in August, should then be planted, taking them up with a good ball, and watering them copiously if the weather be at all dry. The lights should only be put on if very sharp frosts occur until the middle of October; after that time they must be kept gently growing, giving plenty of air in mild weather, and covering up in case of frost, and they will then be ready for cutting about Christmas. Other frames should be planted successively during October or November, which, being treated in the same manner, will furnish a supply all through the winter and early spring. If there be any signs of the supply running out in the early part of the year, a gentle hotbed may be made up, and some of the most forward plants put thereon; some beautifully crisp Lettuce will be obtained in this way. Those who have a stock of the large hand-glasses or cloches will find them admirable for the winter-growth of Lettuce, they being drip-proof, and can be easily covered up with Fern or litter of some kind in hard weather;

those having orchard-houses may utilize a portion for this purpose. If some boxes be planted in September they can, when bad weather arrives, be just placed therein, and their contents will improve in quality. Early in November the Brown Cos should be pricked out in frames to be there wintered. The lights are only to be put on in severe weather, as the object is to keep them as sturdy and hardy as possible. If there be a scarcity of frame room, some may be pricked out in the open ground, choosing a warm, dry spot, and making the soil somewhat sloping towards the south. Prick out the plants thereon about 3 in. or 4 in. apart, fixing the soil firm and smooth around them. A few hoops can be bent over so that in very hard weather a mat can be thrown on, or a row may be planted close to the wall on a warm border, and if the winter be not too severe they will survive and come in early in the spring. All those planted in frames should have careful supervision during the winter, giving plenty of air and removing regularly all decaying leaves. The surface, too, should be dredged occasionally with dry mould or ashes, a supply of which must be laid in for that purpose. Slugs and snails must be looked sharply after, as they will, if undisturbed, commit sad havoc; some soot sprinkled on the surface of the soil will keep them in check. As before mentioned, the demand must regulate the operations of the grower; if much salading be required in the winter, a good breadth of the Brown Cos should be sown in August, which should be removed, before very wet or hard weather sets in, to where they can be sheltered from wet and frost. Pits covered with shutters made rainproof answer the purpose, if frames cannot be had; they may, even in default of better convenience, be stored away in a dry, airy shed. These, of course, cannot be expected to equal in quality those cut in a growing condition: but they afford a greater supply than would otherwise be obtainable at that season; besides, the growing stock in the frames gets thereby a longer season of growth.

JOHN CORNHILL.

Byfleet.

FRUIT AND VEGETABLE CROPS OF FRANCE.

DOCUMENTS lately published by M. Joly, and based for the most part on M. Hussion's work on the "Food-Supply of Paris" and the Report of the Paris Chamber of Commerce on the "State of Labour in France," supply the following particulars:—In 1872, in the Department of the Seine alone, there were 24,803 cultivators of different kinds, who together produced nearly £1,100,000 worth of fruit, vegetables, and flowers. There were in the Department 427 gardens, covering an area of over 200 acres, of which 2,500,000 square ft. were under glass. The quarries used for Mushroom growing had an area of nearly 20 acres, and consumed £2200 worth of manure, the value of the year's crop being £72,000. On the market of the Halles Centrales were sold whole during the same year:—Choice fruit, 790 tons, at an average of 60c. per lb.; ordinary fruit, 3186 tons, at 37c. per lb.; choice vegetables, 668 tons, at 43c. per lb.; ordinary vegetables, 11,600 tons, at 15c. per lb. The gross amount realized by the sales was over £130,000. The total quantity of fruit brought into Paris during the year is estimated by M. Hussion at nearly 62,000 tons. Fresh vegetables from the south of France amounted to 19,700 tons; those from the neighbourhood of Paris, to 343,620 tons; dried vegetables and herbs, to 16,735 tons.

The subjoined Table, prepared from data collected by the Administration des Douanes, shows the quantities of garden produce exported from France during the year 1874:—

Oranges and Lemons	...	...	...	3,257 tons.
Fruit, fresh	...	...	...	42,700 "
Do., dried and flattened	...	...	...	14,000 "
Do., preserved, conserves, &c.	...	...	...	2,135 "
Almonds, Filberts, and Walnuts...	...	...	...	15,000 "
Vegetables, dried	...	...	...	24,161 "
Chestnuts	...	...	...	6,300 "
Potatoes	...	...	...	173,144 "
Total	...	...	...	280,698 tons.

[Here no mention is made of the quantities of fresh vegetables exported from France.]

Seedling Camellias.—I shall be grateful to any reader of THE GARDEN who would tell me the best treatment (as to transplanting soil, &c.) for seedling Camellias from the time they get their second leaves, when my seedlings are nearly sure to be spotted, and then gradually perish.—SOUTH ITALY.

NOTES ON THE FLORA OF THE PYRENEES.

By GEORGE MAW, F.G.S., F.L.S., &c.

As a mountain district the Pyrenees form a contrast to the complicated mass of the Alps, and may be described in general terms as a huge escarpment forming the edge of the great tableland of Spain, which has an average level of about 2000 ft. above that of the French plain on the northern side. Between the high-level Spanish plain and the low-level French plain, central patches of eruptive rocks determine the line of the main chain, from which, amidst a multitude of east and west faults and dislocations, the mesozoic and tertiary beds dip away north and south, those on the north side bending up suddenly towards the original line of upheaval, whilst on the Spanish side they spread away as a plateau over the plains of Navarre, Aragon, and Catalonia as a wavy expanse of escarpments facing the chain. On the north side, the high ground flanking the main mass of the range has been channelled by the agency of sub-aërial denudation into a multitude of beautiful gorges and valleys, many of which are remarkable for their sudden turnings; gravitation of the waterflow from the high chain has induced a general south and north direction, whilst the trend of the strata and lines of faulting have acted in conflict, and here and there suddenly diverted the original lines of waterflow east and west for a few miles, when again gravitation has had its way, suddenly bending the streams back in a northerly direction.

One of the most characteristic features of the northern flanks of the Pyrenees is the series of beautiful mountain masses of from 5000 ft. to 8000 ft. high that occur at the termination of the ridges separating the lateral valleys. The accompanying view of the Pic du Midi may be taken as typical of more than a dozen similar mountains that face the plain of Languedoc at the junction of the streams flowing from the central ridge; higher up, after passing through the lateral gorges, the valleys for the most part terminate against the central mass of the chain in huge amphitheatres or "cirques," which form noble features in the aspect of the higher parts of the range.

Pine forests throughout the chain enrich the beautiful scenery. *Pinus maritima* and *P. Pinæ* occurring at low levels near the sea at the eastern and western extremities, and *P. halepensis* near the Mediterranean in the Eastern Pyrenees. *Abies excelsa*, in the lower parts of the forests, *Pinus sylvestris* and *P. pectinata* in the middle zone, *Pinus uncinata* at high levels up to 7000 ft., and *Pinus Laricio* sparingly in the Central Pyrenees.

A careful comparison of the alpine and pyrenean floras presents many points of interest in the geographical distribution of species: the larger proportion of species are common to the Alps and Pyrenees, whilst a large minority are special to the latter.

Primulas are but poorly represented as regards the number of species—*P. farinosa*, *P. viscosa*, *P. latifolia*, *P. Auricula*, *P. integrifolia*, *P. officinalis*, *P. elatior*, and *P. intricata*, complete the list; and the last, which is but a form of the alpine *P. suaveolens*, is the only species not found in the Alps. The allied genus *Androsace* presents a curious contrast, for nearly half the pyrenean species, including *A. pyrenaica*, *cylindrica*, and *imbricata* are absent from the Alps; and all the commoner alpine species, except *carnea* and *Vitaliana*, are absent from the Pyrenees.

Of Gentians the yellow *Gentiana Burseri* and *G. pyrenaica* may be named as special pyrenean species, and most of the widely-distributed species of the Alps also occur in the Pyrenees.

The distribution of Saxifrages in the Pyrenees presents some points of interest. *S. Clusii*, which is common to the Pyrenees and the Tyrol, is missed in Switzerland; *ajugæfolia*, *aquatica*, *geranioides obscura*, *pentadactylis*, *longifolia* (Lapp), *arctioides*, and *calyciflora*, are peculiar to the Pyrenees, the two last have interbred largely, and produced several curious hybrids. The Western Pyrenees and their western extension to the Asturias, are, with the south-west of Ireland, the head-quarters of the Robertsonian Saxifrages, a few isolated forms of which also occur in the Alps of Tyrol and Switzerland, and it is an interesting fact that several other Hibernian species, notably *Menziesia polifolia*, which occurs so

profusely in Connemara, are also associated with the Robertsonian Saxifrages in the Western Pyrenees and the Asturias; almost the only continental habitats of the Scotch *Menziesia cœrulea* are in the vicinity of Luchon, Central Pyrenees.

Many of the commonest plants of the Pyrenees which form marked features in the flora, are peculiar to the district. *Tenerium pyrenaicum* is abundant everywhere; *Hyacinthus amethystinus* in the moist meadows, and *Antirrhinum semper-virens* and *Ramondia pyrenaica* on the rocks, conspicuously adorn the valleys between Lourdes and Gèdres, and *Viola cornuta* forms a beautiful feature in the meadows before the hay harvest in the early summer.

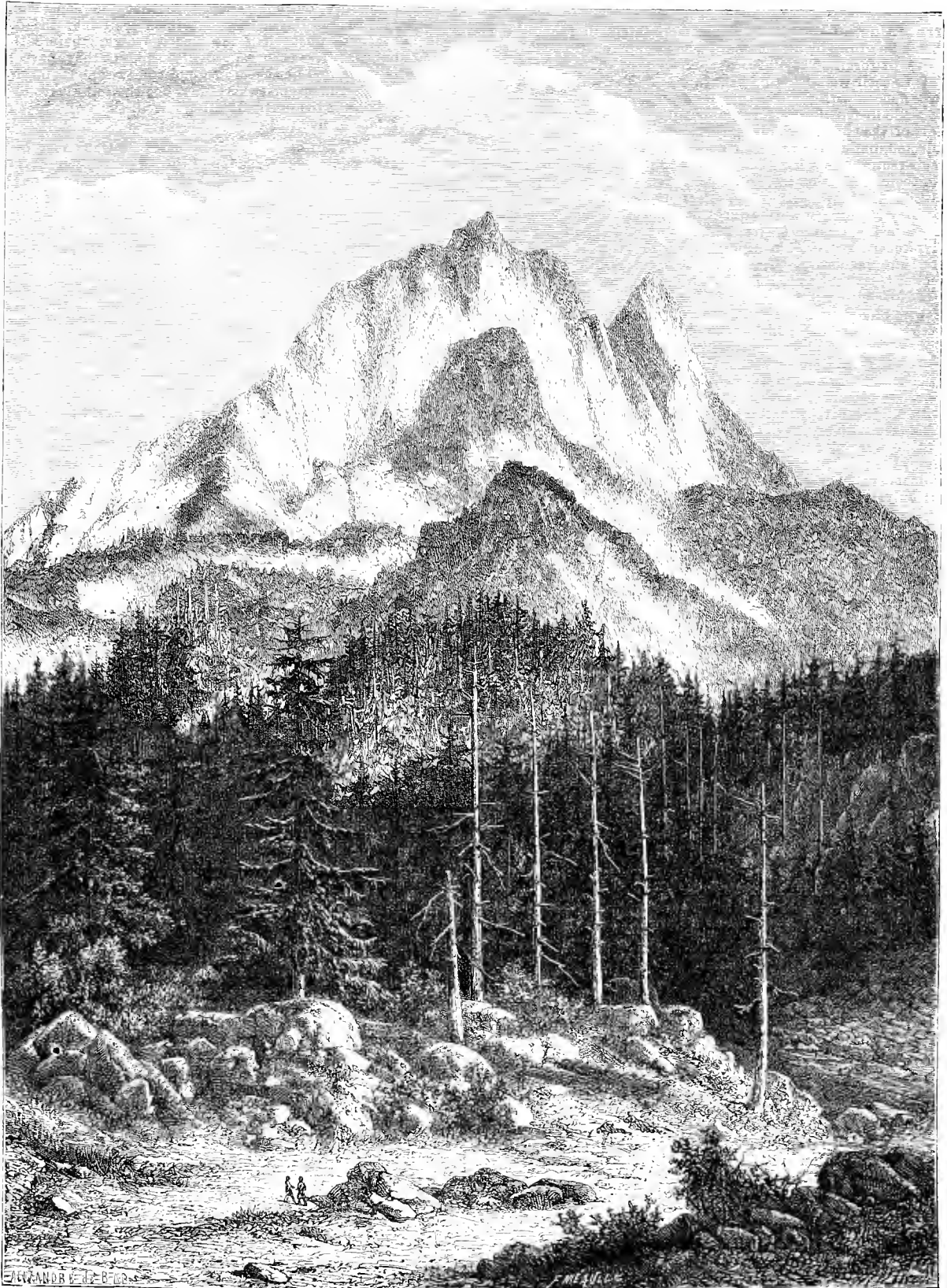
A remarkable instance of extreme geographical isolation occurs in *Dioscorea pyrenaica*, a miniature Yam, found in one or two of the higher valleys of the Pyrenees, though belonging to a genus which is both extra-european and tropical.

Amongst the many highly ornamental alpine plants of the chain, *Aquilegia pyrenaica* takes a prominent place: cultivated specimens give but a faint idea of its extreme beauty in its native habitats, which is often set off by association with golden masses of *Hypericum nummularium* on the higher rocks. *Saponaria cœspitosa*, with its brilliant cushions of large rosy flowers, *Adonis pyrenaica*, *Arenaria purpurascens*, *Arenaria tetraquetra*, *Globularia nana*, *Geranium cinereum*, and *Ranunculus amplexicaulis* also form conspicuous features in the pyrenean flora.

Of bulbous plants *Iris xiphoides* is one of the most abundant species in the higher valleys, often associated with the Dog's-Tooth Violet and *Fritillaria pyrenaica*, the only pyrenean Fritillary. There are but two species of *Crocus* in the Pyrenees. *C. vernus* occurs less abundantly than in the Alps, and the beautiful autumn-flowering *C. nudiflorus* has its headquarters here, extending also westward to Central Spain, and eastward towards Central France, but no other Spanish *Crocus* reaches so far east as the chain.

Of the three species of pyrenean Lilies, *Lilium Martagon* and *L. bulbiferum* are common to the Alps and Pyrenees. *L. Martagon* is most abundant, and extends as far west as Portugal; *L. bulbiferum* only occurs here and there sparingly, and appears as a sort of outlier from its district, the lower regions of the Alps. *L. pyrenaicum*, in its west-european distribution, is strictly limited to the Pyrenean chain, as it can scarcely be looked upon otherwise than as an alien in Devonshire; it is found nowhere in the Swiss or Eastern Alps, but after bridging the whole of France, Switzerland, and the Tyrol, it curiously reappears in a slightly modified form as *Lilium albanicum* in Eastern Europe. The Pyrenean district is the north-eastern starting point from which the *Corbulariæ* extend westward into Spain and Portugal, and they are largely represented in the Asturian prolongation of the Pyrenees. The Pyrenees and the Asturias are also the head-quarters of the Ajax group of *Narcissi*. *Narcissus muticus*, a form closely allied to *Pseudo-Narcissus*, is abundant about Gavarnie and the sub-alpine districts of the Pyrenees.

The limits of a short paper are insufficient to deal fully with the many interesting points connected with the geographical relations of the special plants of the Pyrenees and the distribution of its rich flora: to the plant collector there are few districts so tempting or so easily accessible. Luchon, in the heart of the Pyrenees, can now be reached direct from Paris by rail in twenty-five hours, and is a capital centre for botanical exploration. The Val d'Esquerry, within a short ride, and the Spanish side of the Porte de Venasque, a rather longer excursion, abound in species which the cultivator of alpine plants will delight to collect. Gavarnie is also readily reached by way of Lourdes and Luz, and has the advantage over Luchon in its altitude of 4400 ft. A new hotel near the Cirque de Gavarnie now offers additional accommodation to that at the homely but comfortable little inn lower down, which botanical explorers have for many years made their head-quarters. Those who contemplate a botanical tour in the Pyrenees, should consult Phillippe's "Flore des Pyrénées," Packer's "Guide to the Pyrenees" (full of botanical information), Wilkomm and Lange's "Prodromus Floræ Hispaniæ," Grenier and Godron's "Flore de France," Bentham's "Catalogue des Plantes Indigènes des Pyrénées," and "Verlot's Guide du Botaniste Herborisant."



VEGETATION OF THE MIDDLE PEAK OF OSSAU, PYRENEES.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Sarracenias.—I know of 10 plants more interesting than these; they should be grown by all amateurs who can appreciate beauty and singularity of form. They are easy enough to manage if a few essentials to their well-being be kept in view. The want of success often experienced with these plants is generally attributable to the mistake made in treating them indiscriminately with the ordinary occupants of the stove, not only in the amount of heat to which they are subjected, but also as to water and soil. The advice often given as to their requirements has been such as to induce those not experienced in their cultivation to keep them in too great heat, especially in the winter time, which has the effect of preventing their getting the rest they require; it also induces weak, soft, elongated growth, that stops many of the leaves being fully developed into their wonted pitcher-like form, a condition which robs them of their characteristic singularity. The different species will succeed well with similar treatment as to soil, moisture, heat, and air. From the middle of November till the end of February they should have a temperature of 50° by night and 5° more in the day; after this time increase 5° night and day; during the spring and summer it may run from 60° to 70° in the night and from 75° to 80° by day, according to the state of the weather. Whether they seem to need it or not, each year in February get all the soil gently away from them, re-potting them in a fresh compost consisting of equal parts of the best fibrous peat with all the earthy matter abstracted, and chopped Sphagnum liberally mixed with corks or charcoal broken moderately fine, adding to the whole a good sprinkling of sand. If they be potted late in the season, the pitchers often come crippled. *S. Drummondii alba* and *S. Drummondii rubra* are exceptions to the others in the time of potting, as about July, when their spring growth is finished, is the best season to move them. The pots should be one-third filled with corks; the creeping stems must be kept just above the soil. They must be watered every day from the time they begin to grow freely until autumn, and twice a week in winter. All the varieties of *Sarracenia*, except *S. purpurea*, must not be syringed, as it renders them soft. They should have a shelf of unplanned wood to stand on; this will hold moisture, and it ought to be damped two or three times every day during the time the plants are growing; let them have a place at the south side of the house near the glass, or else elevated till they nearly touch the roof; they should occupy a moist corner, and though they like a moderate quantity of air, it ought not to be admitted close to them. They must not be stood in pans, as their roots are liable to rot when so treated. A very thin shade is necessary when the sun is on them. The flowers ought to be nipped out directly they appear, at any rate whilst the plants are small, as they weaken them. All the flower-stems that are thrown up divide the crowns that produce them into two, by this means they increase, but until they get a good size they ought not to be separate. Scale is very troublesome to them, and it will seriously injure them if allowed to remain; they are also subject to green fly, and above all, thrips; these latter especially get under the rim of the mouth of the pitchers, and if not soon destroyed, the pitchers will be ruined before they have lasted half their proper time. With plants newly imported the almost general mistake is to keep them too hot at first, the result of which is to cause them to make leaf-growth without any corresponding root-action, the latter very often never making any progress during the first summer; when this is the case, they almost always die the ensuing winter. As soon as the plants arrive, they should at once be placed in pots that will only just hold their roots with a moderate quantity of soil. Keep moist, but if they come in the autumn, they should not be subjected through the winter to more than from 46° to 50° in the night, increasing the heat a little as the spring advances, and in the summer give them no warmer treatment than an intermediate-house will afford.

Azaleas.—Any of these that have been forced for the purpose of flowering early should, directly they have ceased blooming, be placed where they will begin to grow; if put now in a cold house the growth, which the heat to which they have been subjected to bring them into flower will have excited, will receive a check; if this occur, the plants will be injured. Be very careful to see whether there are any thrips upon them; should these be found, give a good washing with Tobacco-water. This is not only necessary for the well-being of the Azaleas, but also on account of other plants, for if the insects be only few in number, they will quickly spread to every subject in the house that they will live upon; the safest plan is to wash, whether any thrips are discovered or not. It sometimes happens that Azaleas that occupy pots as large as desirable get into a weak state through the soil becoming exhausted. When in this condition they are generally thrown away; this need not be done, as in a

couple of years they can be brought into a thoroughly satisfactory state. The present is a good time to begin; allow the soil to become rather dry, but not so much so that the plants would need watering for several days; then cut them well into the old wood, reducing them to about half the size they were before they were operated upon. Give them a good cleansing if they have had any insects on them, and put them in a moist heat of about 60° by night. Syringe overhead once or twice a day, but the soil must not be permitted to become too wet. If all go well, they will break in the course of four or five weeks.

Pits and Frames.—The soil intended for Cucumber beds ought to be put in an airy, open shed, and turned over often so as to dry it and bring it into a fit state for use; if too wet when put on the beds, it renders the young leaves so tender by the vapour it causes as to make them very liable to injury from the sun. Give abundance of air to the occupants of frames on mild days, more particularly Lettuces and Cauliflowers, taking the lights off them entirely, so as to prevent their becoming weak.

Kitchen Garden.—Ground at the foot of a south wall should be prepared for Potatoes by digging it over, and, if the soil be poor, adding some manure; by doing this at once in a week or two it will become drier, and be in a better condition for planting than at present.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

February 26.—Making Asparagus land ready for sowing. Getting land ready for Seakale planting. Sowing another batch of French Beans, and placing them where they can be kept at about 55° at night. Potting *Gladiali*, *Chrysanthemums*, *Stachys lanata*, and *Calamint*, and pricking off young plants of *Feverfew* and *Lobelia*. Beginning to box off *Salvia fulgens*. Putting in cuttings of *Justicia*, *Heliotropes*, *Coleus*, *Achyranthes*, *Bouvardias*, *Thyracanthus rutilans*, and scented-leaved *Pelargoniums*. Starting some *Achimenes*. Putting a slight shading over *Cinerarias* during bright days. Tying up some Lettuces under cases to blanch. Watering inside borders of Muscat and Black Hamburgh-house, Rose pits, and Mushroom bed. Salting all Mossy pathways. Thinning first Muscat Grapes; also Strawberry blossoms. Clipping Ivy and cutting out dead Laurels. Giving a little soot to all Strawberry plants in bloom and that have set their fruit. Keeping East India and *Dendrobium*-houses at a temperature of 70° by day and 65° at night with fire-heat. Shutting off fire-heat from *Lycaste*-house at 60°. Starting Muscat and Hamburgh-houses at 53° at night and 58° by day with fire-heat.

Feb. 27.—Putting some *Gloire de Dijon* Roses against a south wall, plunging the pots, and nailing the shoots to the wall for very early out-door flowers. Planting out Cauliflowers between dwarf Peas. Beginning to plant Lapstone Kidney Potatoes. Finishing planting Globe Artichokes. Staking the earliest Peas. Covering more Peas with Asparagus tops to keep them from sparrows. Taking up all plants of Osborn's Winter Broccoli that are showing and placing them under protection. Putting some new soil and manure to Cherry trees. Mannering Strawberry and Asparagus beds. Keeping Rose-house from 50° to 55° at night.

Feb. 28.—Sowing Radishes under the protection of a Peach wall; sowing also early Dutch Turnips, and six lights of early Dutch Forcing Carrots and Radishes along with them. Potting plants of *Dielytra* for forcing, 200 white Pinks for forcing, and *Tropaeolum caucariense*. Pricking off *Capsicums*. Putting in cuttings of *Plumbago*, *Scarlet Pelargoniums*, and *Willow*, the latter to furnish flower-sticks. Planting some spare hand-glass Cauliflower plants under cases, and a few potted Potatoes under protectors. Putting some Musk into heat, and also the last batch of Rhubarb. Taking young plants of *Centaurea* and *Oxalis* out of heat and putting them into cold pit. Wrapping *Salvias* in Moss, and putting them in boxes in heat in a Vinery. Topping Turnips and covering them up behind a wall in order to try to keep them as late as possible. Watering third Peach-house, giving a truck-load to a tree. Earthing-up third pit of Potatoes. Pruning *Lapagerias*. Rolling walks and Grass lawns.

March 1.—Potting *Heliotropes* and cuttings of stove plants. Shifting *Schizanthuses* into larger pots, also *Veronica Andersoni variegata*. Potting-off spring-struck *Alternantheras*, *Nepeta*, and *Oxalis*; likewise another lot of French Beans, and placing them in second Hamburgh-house. Staking out and re-potting previous cut-

down scented Verbenas. Sowing Rhodanthe and various sorts of Melons; also some Mignonette under the protection of the Orchid-house wall; and a little Chervil, covering the seed with ashes. Planting Potatoes, Shallots, and Garlic; also some Watercress roots in pond. Pricking off some Red and White Celery. Potting East Indian Orchids, using Sphagnum. Putting *Cattleya superba* on blocks, and placing them in East India-house. Putting in cuttings of *Pelargoniums*, *Iresines*, *Mesembryanthemums*, *Crystal Palace Nasturtiums*, and *Carnations*, the last under bell-glasses on a slight bottom-heat in hotbed frame. Top-dressing planted-out *Gardenias* with leaves. Putting in another batch of Strawberries for forcing; also another crop of *Asparagus* roots. Digging borders for *Carnations* and *Gladioli*; also *Celery* land for Peas, and dressing the Mint bed.

March 2.—Potting Ghent Azaleas and plunging them; also *Deutzias*. Sowing Tree Mignonette in small pots in heat; also sowing Gourds, Beans, Champion of England and Nonpareil Peas, Spinach, Early Dutch Turnip, Incomparable White Celery, Early French Horn Carrots, and Radishes in frames. Planting *Schizostylis coccinea*; also Horseradish in trenches. Pricking off Sweet Basil, Marjoram, and seedling Tomatoes. Shifting Disas, *Lælia majalis*, and *Epidendrum erubescens* and putting them into greenhouses. Putting in cuttings of Purple King Verbeena, Anne Boleyn Pink, and more *Dablias*; also *Monochæstum ensiferum*, and *Thyracanthus rutilans*. Putting in Chicory to blanch; also another batch of Sea-kale. Digging vacant borders, preparing land for Cabbages, and preparing a bed for *Carnations*. Arranging and cleaning old *Pelargoniums* in pits. Putting pots over Seakale, and covering them up with soil for late cutting. Preparing frames on leaf-beds for young spring-sown Lettuce plants. Spawning Mushroom-bed. Starting Peach-cases at 45° to 50° at night, 55° by day with fire-heat, to 85° by sun-heat with air on.

March 3.—Potting Heaths in peat; also *Ferns* in loam, sand, peat, and leaf-mould. Potting off rooted Vine eyes, and boxing and potting off *Salvias*; also *Pelargoniums*, *Petunias*, and *Mimulus* for flowering in pots. Shaking out and re-potting old *Fuchsias*. Sowing Onions and Parsley. Planting four frames of Potatoes. Basketing plants of *Vanda cœrulea*. Mossing *Dendrobiums* on blocks, and re-blocking those that require it. Nailing and arranging creepers on front of house. Clearing away straw from *Calceolaria* pit. Tying and stopping third Vines. Clipping Box edgings. Thinning all Grapes that require it, leaving seven bunches to a rod on pot Vines. Disbudding early Peach trees a little where the shoots are very thick. Looking over fruit room and removing all decayed fruit. Cleaning Herb beds and Rhubarb plot. Burning up rubbish.

Orchids.

Many Orchids will now be found in a sufficiently advanced state of growth to admit of being either re-potted or top-dressed, for any which are well-rooted and healthy will only need the old material removed from between the roots and its place supplied with fresh compost. Unhealthy plants having few roots should be turned out of their pots, the decayed portions of the roots cut away, the foliage and pseudo-bulbs thoroughly cleaned, and the plants re-potted in comparatively small pots. In the case of unthrifty specimens of this kind it is better to place them after re-potting in a group by themselves in the Orchid-house, in order that they may be better attended to than the more robust-growing plants. Whenever new pots are selected for potting Orchids care should be taken that they are soaked in water for some hours, and afterwards drained until they are almost dry before using them; when old pots are employed, they should be perfectly clean within and without; the crocks also should be thoroughly cleaned and exposed to the air for a time before they are made use of. A supply of fresh, living Sphagnum Moss should at once be obtained, and stowed away in a cool, airy shed, so that it may be preserved in a living state throughout the whole of the spring. Before putting the Sphagnum away it should be carefully picked over, removing all rushes and leaves, and taking out all weeds, but the Moss itself should not be shaken about more than is necessary, as it keeps better and fresher if allowed to remain in small flakes as gathered; it also grows better, and consequently keeps good longer, when used in this form. It is a bad practice to shred up the Sphagnum and mix it with peat for Orchids, even where a mixture of peat and Moss is necessary. It is better, in potting a plant requiring such a compost, to use the small lumps of peat and Sphagnum as gathered alternately; the Moss will then grow rapidly, whereas, if torn up and mixed with the peat, it takes a long time to start into growth, and, in the case of summer-potted plants, it frequently dies, and the plant loses the benefit of that gentle moisture which is so conducive to its well-being.—JAMES O'BRIEN.

THE FRUIT GARDEN.

PRUNING PEAR TREES.

The first point of importance in regard to Pear trees is when to prune them. Prune in winter or very early in the spring, and the trees are forced into early blooming; prune late, and there is a considerable loss of vital strength by the growth already made and cut away on the extremities of the shoots; in fact, the time of pruning compels the cultivator to make a choice between the vigour of his trees and their fruitfulness; and the fruit, being the primary object, of course will unhesitatingly be awarded the preference. Some prune so persistently and so late in summer that little or no pruning is possible in the winter or spring months. This practice is more dangerous than early autumnal or winter pruning. In our climate it is unwise, as a rule, to prune in summer more than once. Were sunshine and warmth perpetual and constant in quantities and conditions instead of being erratic and inconstant, then persistent summer stopping or pruning might be more rationally carried out. Hence with fruit trees under heated glass structures the cultivator may pinch, stop, or prune Pear and other fruit trees as he pleases; but the policy or wisdom of doing so may reasonably be challenged on vital and natural grounds. In the open air in our climate all such unnatural and unclimatical (to coin an expressive phrase) summer prunings are vicious in theory and bad in practice. One summer pruning in June is all to which pyramidal, cordon, espalier, or other Pears should be subjected in the open air in our climate; neither must that single pruning be too close, or else the breastwood had better be left unpruned. The result of cutting into one or two eyes, and the breaking of those eyes is a late and worthless growth, which will render the formation of fruit-buds impossible, and make the tree quite tender and totally unfit to face the cold winds and frosts of winter. Judicious summer pruning exposes the remaining buds to the best solar or other influences for their conversion into fruit-buds. The questions have frequently been raised, is such conversion possible, and at what stage in the development of buds do such changes occur? Has the cultivator the power of electing where a fruit-bud shall be placed, and where a wood-bud? Are such vital points in fruit-growing amenable to cultural and solar conditions—as queen bees, for example, are an affair of royal cells? Multiply the latter and you multiply queen bees, increase the light and heat on Pear-buds at the base of the breastwood and you multiply fruit-buds. That, however, is the knotty problem on which the success of summer pruning may be said to be based. Winter or spring pruning has no power to convert anything. It may hasten or retard the development of buds, and thus so far create or hinder undue competition with other buds, whether of wood or fruit.

The time of the opening of flower-buds is, therefore, largely in the pruner's power, as also the conditions under which buds shall grow into fruit or wood; and these, properly understood, are wonderful powers indeed. Prune your trees in November, and your Pears will be in flower in February or March; prune them in February or March, they may not be in bloom till April or May. By losing a month, a week, a day in the time of flowering, the chances of a crop are greatly increased. In our springs the later the flowers the more sure the crop; and as late pruning results in late flowering, the later we prune the more surely does fruitfulness follow, which assertion may be safely accepted as absolute truth, confirmed by observations and experience extending over a quarter of a century. It may be safely carried out in practice, even to the extent of allowing the fruit to set and the leaves to be fully expanded, before we prune Pears at all or reduce the breastwood with its several buds left at its base after summer-pruning to the one or more buds left after the winter or spring pruning. The Pear seldom bleeds much, even if pruned after growth has begun; it does not bleed at all if not pruned till the leaves are expanded; hence the later we prune, as far as the chances of a crop and the well-being of the trees are concerned, the better. Of course, too, in pruning late the cultivator has a greater elective power in leaving the best-positioned wood-buds and the most perfectly set and formed fruit. For, assuming

that the pruning of Pears in the open air may be put off till May, not only with safety but with advantage, he may then prune or thin off fruits as well as wood-buds at one and the same operation, and only leave the best of both intact. Undoubtedly there is a loss of vital force in such late prunings; but that is of little moment. Every pruning, be it early or late, represents a loss of force, and perhaps when our knowledge of plant life is more advanced, and our cultural arts reach a higher degree of perfection than at the present time, pruning in the style and sense in which it is now indulged may become a thing of the past. D. T. FISH.

Early Melons.—Considerable difficulty often occurs as regards ripening off first crops of Melons by a certain time; in fact, a classification of the various sorts—into early, midseason, and late—as in the case of Cucumbers, is much needed; inasmuch as any one anxious for an early crop of Melons has no trustworthy data to guide him. Some recommend Little Heath, some Scarlet Gem, and others Merton Hall or Queen Emma, as the best for an early crop; Hero of Bath is also well spoken of as an early kind, and I observe that Mr. Penny, of Sandringham, describes The Prince's Favourite as a fortnight earlier than Hero of Bath, and asserts that it is in all respects a first-rate Melon. The gain of a fortnight as respects ripening is a great advantage in a Melon; and I hope that some of the readers of THE GARDEN may be induced to give their experience in relation to the best varieties for early crops. Many years ago the Early Cantaloup was extensively grown as an early Melon, and Bromham Hall, Cuthill's Scarlet Flesh, Golden Perfection, and Pine-apple Gem are also good early kinds. Can any one name a variety better and earlier than those just adverted to, that is, a Melon of good quality that will be ripe in less time from the date at which it is planted under ordinary treatment in houses, pits, or frames?—D. T. FISH.

Soot and Lime v. Birds.—Those who, like myself, are troubled with birds picking the buds off their Gooseberry and Currant trees may derive some benefit from the following remarks:—In 1875 I had some of the trees here almost completely stripped of their buds; consequently very little fruit was the result. I had pruned early so as to forward the work as much as possible. In 1876 I pruned as usual, viz., about the beginning of the year; after all were pruned, I had both Gooseberry and Currant bushes well dusted with lime and soot mixed when the bushes were wet, in order that the mixture might adhere to the trees, and the result has been most satisfactory, not a bud having been taken after the bushes were dressed. This season I pruned about the same time as last year, and had them dusted in the same way, and the result has been equally satisfactory. I have, however, had to repeat the operation lately, as the heavy rains had nearly washed the first dressing off. I read (see p. 104) that Mr. Groom prefers pruning in the spring when the buds are just bursting into leaf; that may be all very well, but few can spare the time to prune at that particular period of the year. As for shot and powder, which he recommends, I have always found them to be more destructive than even the birds, especially if shot into the bushes or trees, as the shots injure the wood and cause canker.—WILLIAM WYNN, Stamford.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Grafting Figs.—Figs are constantly grafted or rather budded in this country, the time being March, varying slightly according to the situation; the usual way is budding as practised for Roses, Lemons on bitter Orange stocks, &c. Several large trees, which were budded two years ago, gave me a fair crop last season. Another mode is "flute" grafting, i.e., taking a ring of bark with the bud and fitting it rapidly and accurately on the prepared stock. Probably Mr. Lee attempted grafting when the season was too far advanced.—SOUTH ITALY.

Bleeding in Vines.—Can any one tell me how to stop Vines from bleeding? I pruned mine in December, and gave them the usual dressing on January 28, nevertheless this week they have started bleeding at almost every spur. It is the late Vinery in which the occurrence has taken place, although I have given air day and night; the border, too, has been covered with leaves and rough manure since the 1st of November.—C. Eaton, Derby. [Drying the ends with a hot iron, and coating them over with patent knotting, used by painters, will often stop Vines from bleeding, but, with the mild weather and the growing season close at hand, the best remedy is to close the Vinery and start them into growth.—JAMES SMITH, Waterdale.]

Vines for a New Vinery.—I am building a Vinery 36 ft. long and 12 ft. wide; I can only give an outside border 1 ft. wide; it will, therefore, be more convenient to place the Vines inside with openings in the foundation wall to let the roots run through. Will the Vines do as well planted in this manner as if planted outside? I shall not force very much, but use warmth when requisite. How many Vines ought I to plant in this house, and what kinds? Will some of your correspondents help me in this matter?—OLD SUBSCRIBER.

PLATE LXII.

EXOCHORDA GRANDIFLORA.

Drawn by Mrs. DUFFIELD.

ALTHOUGH this handsome hardy deciduous shrub has been in cultivation in this country for nearly a quarter of a century, it has not received the attention it deserves, and is still very rarely seen in our gardens. It is one of the numerous ornamental shrubs introduced from China by Mr. Fortune, who first found it in North China in 1845, and in the following year he collected fruiting specimens of it in the Che-Kiang hills. Mr. Fortune took it to be a species of *Amelanchier*, and sent seeds of it to Messrs. Standish and Noble, of the Bagshot Nurseries, under the name of *A. racemosa*. It certainly bears a general resemblance to the genus in question, especially in its flowers, but it differs widely in the structure of the latter. The exact date of its introduction I have not been able to ascertain, but it appears to have been first exhibited in 1854, and the same year it was figured in the "Botanical Magazine," under the name of *Spiraea grandiflora*. But the general aspect of this shrub is so different from most of the *Spiraeas*, and the flowers so much larger, that, independently of less obvious characters, it possesses some claims to generic rank. It was Dr. Lindley ("Gardeners' Chronicle," 1858, p. 925) who gave it the name which it now bears; and writing at that date, he speaks highly of its merits. One character, which specially recommends this shrub, is its early and long-flowering season, from early in April onwards. It is a very distinct shrub, and perfectly hardy in the neighbourhood of London, flowering profusely on warm soils with gravelly bottoms. Like some of the shrubby *Spiraeas* it requires a little pruning and trimming to keep it neat. It is of bushy habit, and grows to a height of 8 ft. or 9 ft., and probably higher under favourable conditions. There is a plant of it in the collection of shrubby *Rosaceae* in the pleasure grounds at Kew, the main branches of which are from 2 in. to 3 in. in diameter at the base. Its botanical affinities are with the genera *Stephanandra*, *Kerria*, and *Rhodotypus*, all natives of the same region. W. B. H.

Herbaceous Plants Suitable for Beds.—Some time ago a question was asked in THE GARDEN whether there were herbaceous plants suitable for bedding during the summer months, to which I do not think very satisfactory answers were given. *Delphinium formosum*, lovely for a time, is by no means a continuous bloomer, even when the seed-vessels are gathered, nor are there any *Delphiniums* as yet raised that bloom continuously. In the garden of Mr. Henry Sherbrooks, Oxtou, Notts, there is a magnificent bed of blue never out of bloom: it is *Campanula carpatica*. The white variety would no doubt bed equally well. *Campanula trachelium* might be still more successful, but I have never seen a fine variety of *trachelium*. There is a lovely white *Delphinium*, though not so tall as *formosum*, known as *Delphinium chinense album*.—FRANK MILES, Bingham.

Clematis Fence.—After all, none of the hybrid *Clematises* equal *C. Jackmanni* for continuity and density of bloom. A lovely one is the six-petaled, rich violet, free-blooming variety, known as Thomas Moore. Mr. Anderson Henry's hybrids make growth too late in the year, and get caught by the winter. I have only had two blossoms of *L. Henryi* in two seasons, but those blossoms were enormous. All the hybrids from *C. lanuginosa* get killed off or disappear somehow in a season or two, but *C. Jackmanni* is always to the fore. At the back of my long border there is a fence of plaited laths, and the whole way I have plants of *C. Jackmanni*, so the fence will be a purple mass this summer. When the plants have done blooming late in the autumn, I carefully disentangle the growths, and lay them down in a shallow trench along the base of the fence, putting 3 in. or 4 in. of rich soil over them, and just leaving out of the ground the end shoot, which is just beginning to swell. All the buds will grow, and the shoots spear through the soil. When they have ceased flowering in autumn they begin to make root-growth at the base of each shoot, so by spring one can detach them or leave them to strengthen the fence. One cannot have too many plants of *Clematis Jackmanni*; a good thing always keeps its proper value.—F. M.

Bouvardias for Winter.—We grow *Bouvardias* here in a succession Pine stove in which they are subjected to rather a brisk heat, and thus treated they furnish us with plenty of cut flowers for some three months when they are most wanted. Four of the best are *B. jasminiflora*, *Bridal Wreath*, *Humboldtii*, and *Davisonii*.—DAVID BURKE, Boughley.



THE LIBRARY.

DARWIN ON ORCHID FERTILIZATION.*

THE first edition of this remarkable book, which was published early in 1862, gave an impetus to the study of plant-life

in its relation to insects, and since its appearance the subject has been pursued with advantage by Lubbock, Bennett, Müller, and others. Although not so valuable to practical horticulturists as the recently published "Cross and Self-Fertilization of Plants," by the same author, this book is nevertheless most instructive, and a work which may be read with advantage by all who are interested in the higher branches of plant-life. The following extract, relating to the production and vitality of Orchid seeds,

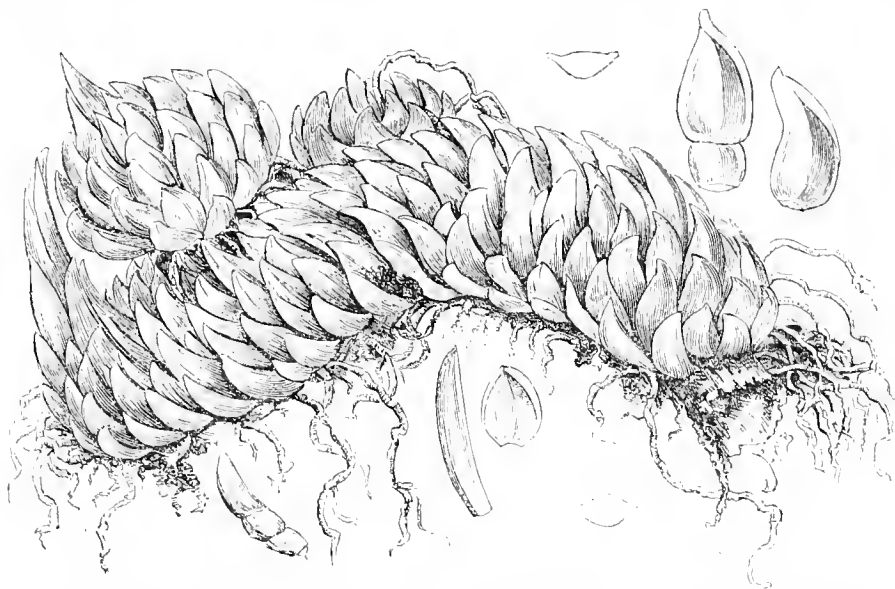
will, we feel sure, be read by many with much interest:—

The final end of the whole flower, with all its parts, is the production of seeds, and these are produced by Orchids in vast profusion. Not that such profusion is anything to boast of; for the production

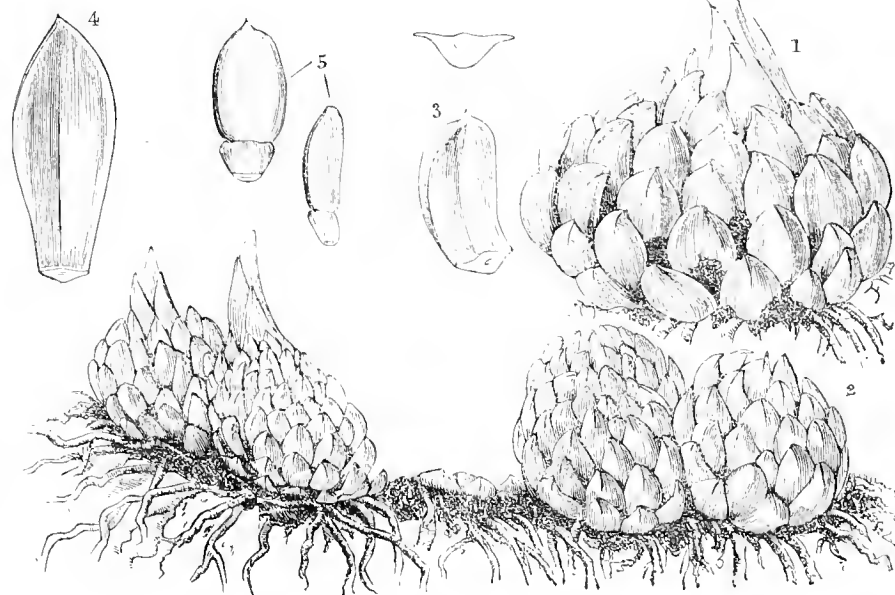
of an almost infinite number of seeds or eggs is undoubtedly a sign of lowness of organization. That a plant, not being an annual, should escape extinction, chiefly by the production of a vast number of seeds or seedlings, shows a poverty of contrivance, or a want of some fitting protection against other dangers. I was curious to estimate the number of seeds produced by some few Orchids; so I took a ripe capsule of *Cephalanthera grandiflora* and arranged the seeds on a long ruled line as equably as I could in a narrow hillock; and then counted the seeds in an accurately measured length of one-tenth of an inch. In this way the contents of the capsule were estimated at 6020 seeds, and very few of these were bad; the four capsules borne by the same plant would have therefore contained 24,080 seeds. Estimating in the same manner the smaller seeds of *Orchis maculata*, I found

the number nearly the same, viz., 6200; and, as I have often seen above thirty capsules on the same plant, the total amount would be 186,300. As this Orchid is perennial, and cannot in most places be increasing in number, one seed alone of this large number yields a mature plant once in every few years. To give an idea to what the above figures really mean, I will briefly show the possible rate of increase of *O. maculata*: an acre of land would hold 171,240 plants, each having a space of 6 in. square, and this would be just sufficient for their growth; so that, making the fair allowance of 400 bad seeds in each capsule, an acre would be thickly clothed by the progeny of a single plant. At the same rate of increase, the grandchildren would cover a space slightly exceeding the island of Anglesea; and the great grandchildren of a single plant would nearly (in the ratio of 47 to 50) clothe with one uniform green carpet the entire surface of the land throughout the globe. But the number of seeds produced by one of our common British Orchids is as nothing compared to that of some of the exotic kinds. Mr. Scott found that the capsule of an *Acropeta* contained 371,250 seeds; and judging from the number of flowers, a single plant would sometimes yield about 71,000,000 seeds. Fritz Müller found 1,756,410 seeds in a single capsule of a *Maxillaria*; and the same plant sometimes bore half-a-dozen such capsules. I may add that by counting the packets of pollen (one of which was broken up under the microscope) I estimated that the number of pollen-grains, each of which emits its tube, in a single anther of *Orchis mascula* was 122,400. A micist estimated the number in *O. morio* at 120,300. As these two species apparently do not produce more seed than the allied *O. maculata*, a capsule of which contained 6200 seeds, we see that there are about twenty pollen-

grains for each ovule. According to this standard, the number of pollen-grains in the anther of a single flower of the *Maxillaria* which yielded 1,756,410 seeds must be prodigious. What checks the unlimited multiplication of the Orchideæ throughout the world is not known. The minute seeds within their light coats are well fitted for wide dissemination; and I have several times



21. *L. pardalinum* (California): from a good-sized cultivated specimen; the small figures show entire and jointed scales and sections of the variably-shaped scales, &c.; colour, white or yellowish, rarely suffused with pink. [See p. 156.]



21. *L. superbum* (America—Eastern United States): from a cultivated specimen 1. Bulb, natural size. 2. Rhizome-bearing bulbs, about one-half natural size. 3 and 4. Variable entire scales. 5. Ditto jointed scales, section, &c. Colour, white, delicately suffused with salmon-pink. [See p. 156.]

* "The Various Contrivances by which Orchids are Fertilized by Insects." By Chas. Darwin, M.A., F.R.S. Second Edition. London: John Murray.

observed seedlings springing up in my orchard and in a newly-planted wood, which must have come from a considerable distance. This was especially the case with *Epipactis latifolia*; and an instance has been recorded by a good observer of seedlings of this plant appearing at the distance of between eight and ten miles from any place where it grew. Notwithstanding the astonishing number of seeds produced by Orchids, it is notorious that they are sparingly distributed; for instance, Kent appears to be the most favourable county in England for the Order, and within a mile of my house, nine genera, including thirteen species, grow; but of these one alone, *Orchis morio*, is sufficiently abundant to make a conspicuous feature in the vegetation; as is *O. maculata* in a lesser degree in open woodlands. Most of the other species, though not deserving to be called rare, are sparingly distributed; yet, if their seeds or seedlings were not largely destroyed, any one of them would immediately cover the whole land. In the tropics the species are very much more numerous; thus Fritz Müller found in South Brazil more than thirteen kinds, belonging to several genera, growing on a single *Cedrela* tree. Mr. Fitzgerald has collected within the radius of one mile of Sydney in Australia no less than sixty-two species, of which fifty-seven were terrestrial. Nevertheless the number of individuals of the same species is, I believe, in no country nearly so great as that of very many other plants. Lindley formerly estimated that there were in the world about 6000 species of Orchideæ, included in 433 genera.

The number of the individuals which come to maturity does not seem to be at all closely determined by the number of seeds which each species produces; and this holds good when closely related forms are compared. Thus *Ophrys apifera* fertilizes itself, and every flower produces a capsule; but the individuals of this species are not so numerous in some parts of England as those of *O. muscifera*, which cannot fertilize itself, and is imperfectly fertilized by insects, so that a large proportion of the flowers drop off unimpregnated. *Ophrys aranifera* is found in large numbers in Liguria, yet *Delpino* estimates that not more than one out of 3000 flowers produces a capsule. Mr. Cheeseman says that with the New Zealand *Pterostylis trullifolia*, much less than a quarter of the flowers, which are beautifully adapted for cross-fertilization, yield capsules; whereas with the allied *Acianthus Sinclairi*, the flowers of which equally require insect aid for their fertilization, seventy-one capsules were produced by eighty-seven flowers—so that this plant must produce an extraordinary number of seeds; nevertheless in many districts it is not at all more abundant than the *Pterostylis*. Mr. Fitzgerald, who in Australia has particularly attended to this subject, remarks that every flower of *Thelymitra carnea* fertilizes itself and produces a capsule; yet it is not nearly so common as *Acianthus fornicatus*, the majority of the flowers of which are unproductive. *Phajus grandifolius* and *Calanthe veratrifolia* in similar situations. Every flower of the *Phajus* produces seeds; only occasionally, one of the *Calanthe*, yet *Phajus* is rare, and *Calanthe* common.

The frequency with which throughout the world members of various Orchideous tribes fail to have their flowers fertilized, though these are excellently constructed for cross-fertilization, is a remarkable fact. Fritz Müller informs me that this holds good in the luxuriant forests of South Brazil with most of the *Epidendrea*, and with the genus *Vanilla*. For instance, he visited a site where *Vanilla* creeps over almost every tree, and although the plants had been covered with flowers, yet only two seed-capsules were produced. So again with an *Epidendrum*, 233 flowers had fallen off unimpregnated, and only one capsule had been formed; of the still remaining 136 flowers, only four had their pollinia removed. In New South Wales Mr. Fitzgerald does not believe that more than one flower out of a thousand of *Dendrobium speciosum* sets a capsule; and some other species there are very sterile. In New Zealand over 200 flowers of *Coryanthes triloba* yielded only five capsules; and at the Cape of Good Hope only the same number were produced by 78 flowers of *Disa grandiflora*. Nearly the same result has been observed with some of the species of *Ophrys* in Europe. The sterility in these cases is very difficult to explain. It manifestly depends on the flowers being constructed with such elaborate care for cross-fertilization, that they cannot yield seeds without the aid of insects. From the evidence which I have given elsewhere we may conclude that it would be far more profitable to most plants to yield a few cross-fertilized seeds, at the expense of many flowers dropping off unimpregnated, rather than produced many self-fertilized seeds. Profuse expenditure is nothing unusual under Nature, as we see with the pollen of wind-fertilized plants, and in the multitude of seeds and seedlings produced by most plants in comparison with the few that reach maturity. In other cases the paucity of the flowers that are impregnated may be due to the proper insects having become rare under the incessant changes to which the world is subject; or to other plants which are more highly attractive to the proper insects having increased in number. We know that certain Orchids require

certain insects for their fertilization, as in the cases before given of *Vanilla* and *Sarcochilus*. In Madagascar *Angraecum sesquipedale* must depend on some gigantic moth. In Europe *Cypripedium calceolus* appears to be fertilized only by small bees of the genus *Andrena*, and *Epipactis latifolia* only by wasps. In those cases in which only a few flowers are impregnated owing to the proper insects visiting only a few, this may be a great injury to the plant; and many hundred species throughout the world have been thus exterminated; those which survive having been favoured in some other way. On the other hand, the few seeds which are produced in these cases will be the product of cross-fertilization, and this, as we now positively know, is an immense advantage to most plants.

A NEW TEXT-BOOK OF BOTANY.*

It might be supposed that students were already sufficiently supplied with "text books" of botany, but the appearance of the present volume seems to show that this opinion is not shared by all authors and publishers. The fact that "the original of the work is the recognised Text-book of Botany in use in the technical schools of Germany," and the translator's belief that no work of the same scope is to be found in the English language, have combined to produce the publication of this latest addition to our list of text-books; and, if it be admitted that any addition was required, we think that the present is the most useful which could have been made. It is handy, very compendious and comprehensive, and illustrated by between five and six hundred woodcuts, some of which are as "old familiar faces" to us, so often have we encountered them in botanical works; moreover, and this is noteworthy, there is a very good index; and the only fault we have to find with the get-up of the book is that the margins are somewhat too narrow. With regard to the contents, it appears to us that the editing has been very judiciously executed, the additional notes of the editor being to the point, and giving in some cases important information not to be found in the original work. The section in the classification of Phanerogams has been entirely rewritten; and there is a brief but very useful epitome of Grisebach's conclusions upon geographical distribution, which is the more acceptable, as there is at present no English translation of that author's important work, and is accompanied by a coloured map. It would be beyond our purpose to enter into anything like a detailed notice of this Text-book; but we can strongly recommend it to readers as being really what it professes to be—the most compendious work embracing the whole range of Elementary Botany which has yet appeared in the English language.—J. B.

The Cactus.†—This little volume consists of a series of essays by Mr. Croucher and others, called by Mr. Alnutt from various sources and arranged in book form for the use of amateurs who have a taste for Succulent Plants, the whole being illustrated by a tinted plate as a frontispiece. Many of the woodcut engravings are, however, old and worn, and might have been omitted with advantage. To amateurs and window gardeners who wish to grow a few Succulent Plants, and who are desirous of gaining some general knowledge of their history, this little work will be useful; but a really comprehensive work on Succulent Plants, corresponding to the French works by Labouret and Lemaire, still remains to be written.

Glazing Without Laps.—In spite of all the novelties that exist in the way of glazing, the old and really inconvenient plan of having laps and using putty still remains the common mode of glazing horticultural structures. All lapped glass should have sufficient space left under the lap to admit of some thin substance being run up between to clear out the dirt that will assuredly accumulate there. Would it not be possible to have panes of glass made exactly to size, with perfectly even ends and slightly hollowed in the centre like glass pantiles? Then, if a very narrow groove were ploughed out of the side of each bar, these glass tiles might be slid up to the top and so filled up until the bottom of each pair of bars was reached. In this case all the rainfall would naturally keep to the centre of the glass, but in the present mode of glazing the water prefers the putty sides, and, working beneath these, causes a drip. The system of fixing glass with putty ought long since to have been abolished.—D.

* "Text-book of Structural and Physiological Botany." By Otto W. Thome. Translated by Alfred W. Bennett, M. A. London: Longmans, 1877.

† "The Cactus and other Tropical Succulents, &c." By H. Alnutt. London: 200, Fleet Street.

LILY BULBS—III.

DUCHARTRE has pointed out the great difference observable in the periods occupied by the germination of different kinds of Lily seeds, inasmuch as while those of *L. tenuifolium* germinate in a few weeks, and form little bulbs bearing several leaves within the first year, the seeds of *L. auratum* and of other kinds lie in the ground at least a year before they show any signs of leaf growth. A proportionate difference is observable in the time which elapses between the germination of the seed, and the blooming period of the resulting seedling plants; and seeing that these differences exist, it is not surprising to find that there is an individuality about some Lily bulbs, notably in the case of *L. polyphyllum*, *L. auratum*, and *L. tenuifolium*, by which they may be identified the first or second year from seed, or at least in most cases long before they have attained their full dimensions and flowering stage. Neither botanists nor cultivators give plants sufficient credit for their indescribable characters, which are often, as in the case of Lilies, observable almost from the appearance of the first young seed growth. These characters in the case of many nearly related varieties of other cultivated plants, as in Heaths, Rhododendrons, and Grape Vines, are amply sufficient to enable cultivators to distinguish plants of any variety with unerring accuracy, notwithstanding the fact that any attempt to describe their minor differences in words would be useless for purposes of discrimination and selection. Hence it is no uncommon occurrence to find cultivators who can unmistakably recognize almost all varieties of Heaths or Grape Vines by their woody growth or foliage alone. And if ever we are to know anything more of plant life in its higher bearings, we must put in practice De Candolle's advice to Mrs. Somerville, and live with, and observe the cycle of plant growth in all its stages from the germination of the seed to the full development of the fruits. Although our sketches and descriptions herewith concluded show a remarkable diversity in the form and growth of Lily bulbs, it must not be supposed that the underground stem development of Lilies, Crocuses, Fritillarias, and other allied bulbous plants is alone worthy of consideration, since the true root growth of many trees, shrubs, and herbaceous plants is in many cases even more distinct and constant in character than are their aboveground stems, leaves, flowers, or fruits.

Sub-genus 4.—*Martagon*.

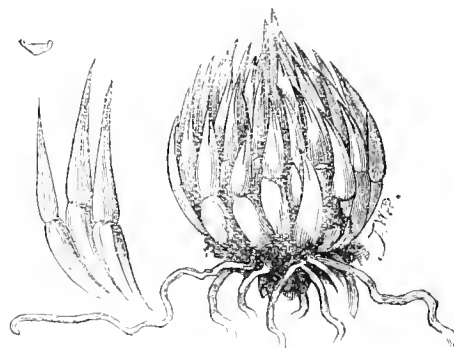
Perianth always drooping, broadly bell-shaped, its divisions lanceolate, broadest about the middle, not distinctly clawed, distinctly reflexed when fully expanded; stamens diverging much on all sides from the centre of the flower; and style declinate.

18. *L. Martagon*.—Another extremely variable plant, bearing white, red, purple, nearly black, and yellowish flowers on conical spikes, the bulbs of all the forms being of a bright yellow colour. Mr. Baker describes the bulb of this species as being "ovoid, 1½ in. to 2 in. long, yellowish perianth, with very numerous, narrow scales." Our figure of *L. Wallichianum* shows the general contour and size of the bulbs of *L. Martagon*, except that these last are more elongated, with narrow, entire-margined, clear yellow scales.

[*L. Martagon*, Linn.—Central and Southern Europe and Siberia. Var. 1. *Martagon prorep.*—Figured in *Bot. Mag.*, t. 893 and 1634; *Red. Lil.*, t. 146; *Jacq. Austr.*, t. 351; *Eagl. Bot.*, t. 279, 3rd edit., t. 1518; *Reich. Ic. Germ.*, t. 451. Var. 2. *Hirsutum*, Miller. *Syn.*, *L. Milleri*, Schultes. Var. 3. *Glabrum*, Sprengel. Var. 4. *Cattaneo*.—Dalmatia; figured in *Visiani Fl. Dalm. Suppl.*, t. 3. *Syn.*, *L. Martagon var. dalmaticum*, Mily.]

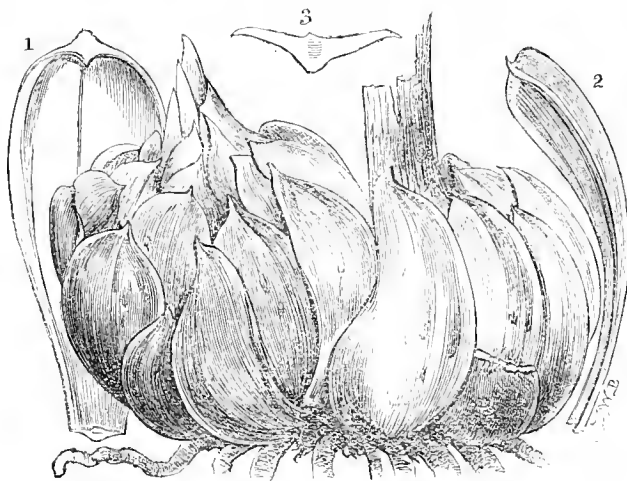
19. *L. maculatum*.—There has been some little misunderstanding about this plant; there can be but little doubt, however, that the *L. maculatum* of the *Bot. Mag.*, t. 6126, is really *L. Hansoni*, the *L. maculatum* of Thunberg being merely a form of *L. elegans*. The bulb of *L. avenaceum* was comparatively unknown until 1877, when Mr. Barr received a small consignment by way of America, from which, however, it must not be inferred that it is otherwise than a Japanese, Kamchatkian, Manchurian, and Kurilean plant. The bulbs, are pale yellow or straw-coloured, globose, varying in size from that of a Hazel Nut to that of a medium-sized Walnut, the narrow scales being lanceolate, slightly triquetrous, sharply pointed, many of them being distinctly articulated about the middle, and readily broken if roughly handled. The name *avenaceum* or Oat-scaled, is

peculiarly applicable to the bulbs of the true plant, since the upper half of the scales when broken off closely resemble Oats in form and colour. *L. Hansoni* and *L. avenaceum* differ mainly in the bulb, the first named, however, being the most ornamental plant; it is also the *L. maculatum* of the "*Botanical Magazine*," t. 6126. *L. Hansoni* is figured in the "*Botanical Magazine*" as *L. maculatum*, and in the "*Flerist*" as *L. avenaceum*, but it is a distinct Lily, and was shown at a meeting of the Royal Horticultural Society in 1874 by Mr. G. F. Wilson, of Weybridge, who kindly supplied the bulb from which our drawing was made. Mr. Baker long regarded this plant as synonymous with *L. maculatum*, and the same opinion was expressed at



19. *L. avenaceum* (Japan); from an imported bulb; natural size.

the meeting at which the plant was shown by Dr. Hooker. Herr Leichtlin, however, who is an authority on all that concerns the genus to which this plant belongs, considers the name of *L. maculatum* as being synonymous with *L. medeoloides*, a figure of Thunberg's published in the "*Memoirs of the Academy of St. Petersburg*" being the authority for this opinion; this figure is looked on by Mr. Baker as in some degree supporting Herr Leichtlin's opinion, without, however, fully proving it. In his "*Notes on Lilies*," published in the *Linnean Society's "Journal*," Mr. Baker has adopted for the present plant the name *L. Hansoni*. Thunberg's description of a bell-shaped perianth by no means agrees with the present species. The plant is



19.* *L. Hansoni* (Japan); from a well-grown cultivated bulb; half natural size. colour, yellowish white, suffused with purple.—1 and 2. Scales, in different positions. 3. Section of scale, natural size.

about 2 ft. high, with distant whorls of leaves 1 in. wide on the lower part of the stem, near the top of which the leaves became alternate, a rather loose umbel of five or six flowers crowning the whole. The flowers are very distinct in form, having scarcely any tube, so that the blossoms are fully 3 in. across; and they are of a deep tawny orange colour, with a thickish cluster of black spots towards the base. The flowers are somewhat nodding, but the style makes an angle with the top of the ovary so as to assume an upward direction. The ovary itself is very deeply six-winged. This Lily flowers in June, and is perfectly hardy.

[*L. maculatum*, Thunberg.—Kamchatka, Manchuria, Japan, Russian America; figured in *Mem. Acad. Petersb.*, 3, t. 5. *Syn.*, *L. avenaceum*, Fisch. Maxim.; figured in *Regel Gartenfl.*, t. 485. Mr.

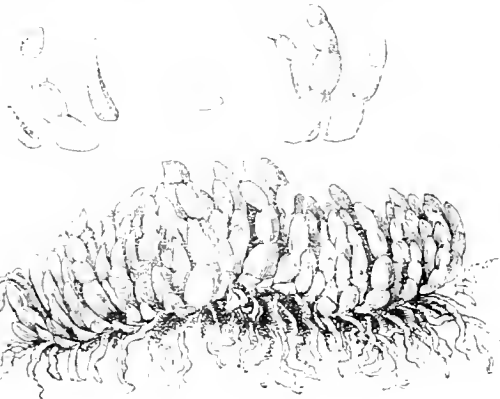
Baker informs me he has recently seen Thunberg's type specimen of *L. maculatum*, and as it is in reality nothing more than a form of *L. elegans*, the name *L. maculatum* must be discontinued.]

20. *L. canadense*.—A variable plant long known in cultivation, having been figured and described by Parkinson as long ago as 1629. Mr. Baker describes the bulbs as "emitting runners 5 in. to 6 in. long; scales thick, obtuse, scarcely $\frac{1}{2}$ in. long." The bulbs are borne an inch or two apart on a stout rhizome, and are about $1\frac{1}{2}$ in. in diameter. The yellow scales are very variable in shape and size, some being short and rounded, others lengthened and lance-shaped, some few of them being jointed. *L. canadense*



19. *L. canadense* (Canada, United States, California): imported bulb; natural size; small figures show rhizomatous habit of growth and jointed or entire scaled bulbs; colour, white, yellow if exposed, rarely suffused with pink.

parviflorum has its bulbs clustered more closely together, something in the way of those of *L. superbum*. The pretty little *L. canadense parvum* has a very distinct bulb, formed of a rhizome 2 in. or 3 in. in length, covered with clustered, white, jointed scales, as shown in our illustration. I saw a whole importation of such bulbs at Mr. Bull's, and although they were very variable in size, I noted none in which there was a tendency to have the scales arranged bulb-fashion around a vertical root-stock; indeed, the bulbs are elongated just as in *L. Washingtonianum*, only narrow, fleshy, ivory-white, jointed scales are here substituted for thin, lance-shaped ones. The bulb growth of *L.*



20. *L. parvum* (= *L. canadense parvum*): imported bulb; natural size; colour, ivory-white, yellowish if exposed.

canadense having been fully described in our last week's paper on Lily bulbs, there is no necessity for further allusion to the matter here.

[*L. CANADENSE*, Linnaeus.—Canada, Eastern United States, and California. Var. 1. *Canadense* proper.—Canada and Eastern United States; figured in Bot. Mag., t. 800 and 858; Bury Hexand., t. 12; "Flore des Serres," t. 1174. Var. 2. *Parvum*.—California: figured in Kellogg, Proc. Calif. Acad. ii., p. 179, t. 52; Regel Gartenfl., t. 725. Var. 3. *Puberulum*, Leichtlin, not Torrey. — California. Var. 4. *Walkerii*, Wood.—California.]

21. *L. superbum*.—A stately bog Lily, likely to become a permanent inmate of our garden. Mr. Baker describes the bulb as being "largo, caespitose, globose, perennial; scales numerous, acute, closely

imbricated tinged with red." *L. carolinianum* has similar bulbs. *L. pardalinum* has bulbs quite distinct, however, being rhizomatous, zigzagged, forming little mat-like masses of roundish oblate bulbs and thick, scaly rhizomes. The bulb scales of this Lily are in some specimens almost all jointed near the base, and can easily be rubbed off.

[*L. SUPERBUM*, Lionæus.—Var. 1. *Superbum* proper.—Eastern United States; figured in Bot. Mag., t. 936; Red. Lil., t. 103; Bury Hexand., t. 36; "Flore des Serres," t. 1014.5. Var. 2. *Carolinianum*, A. Gray.—Eastern United States; figured in Mich.; Bot. Mag., t. 2280; Bot. Reg., t. 580 (not Catesby). Syn., *L. Michauxii*, Poir.; *L. Michauxianum*, Schultes fil.; *L. autumnale*, Lodd. Bot. Cab., t. 335. Var. 3. *Pardalinum*.—California: figured in Kellogg, Proc. Calif. Acad. ii. p. 12. Var. 4. *Bourgei*, Baker.—British Columbia.]

22. *L. columbianum*.—Mr. Baker describes the bulb as "ovoid, perennial, small, white, acute, with lance-shaped scales," and also adds that the plant "scarcely differs from *L. canadense* var. *parviflorum*, except in the bulb not being rhizomatous." I have seen this pretty little variety in flower at Mr. Barr's bulb ground, and he and I agreed in considering it a dwarf, small-flowered variety of *L. Humboldtii* analogous to, and, so far



22. *L. columbianum* (America): cultivated bulb, natural size; colour, yellowish white.

as above-ground development goes, not unlike the small-flowered forms of *L. canadense*, *L. canadense parviflorum*, and *L. parvum*, but, as Mr. Baker so well points out, easily recognizable by examining the bulb-growth.

[*L. COLUMBIANUM*, Hort. Leichtlin.—Oregon and British Columbia. Syn., *L. Sayii*, Nuttall mss.; *L. canadense*, var. *parviflorum*, Hook.; *L. canadense*, var. *minus*, Wood.—This plant has the bulbs of *L. Humboldtii*, except in their being smaller, with a tendency to assume a sub-rhizomatous habit in some examples.]

23. *L. Humboldtii*—A very stately Lily, attaining a height of 8 ft. to 10 ft. even when grown in pots. Mr. Baker describes the bulbs as being "large, 2 in. to 4 in. in diameter, oblique, perennial, not rhizomatous; scales ovate, lanceolate, acute, 2 in. to 3 in. long." I saw several hundreds of fine bulbs of the plant at Mr. Bull's, all singularly alike in form, being ovoid, globose, the pointed scales all curving and facing one way, while the thick roots pointed in the opposite direction. The typical *L. Humboldtii* generally has white, scaled bulbs, but specimens sent by the New Plant and Bulb Company from Colchester were yellowish, tinged with pink or purple. Mr. Bull's examples of *L. Bloomerianum ocellatum* were also small, plump, and purplish, profusely dotted with purple as in *L. Browni*. Mr. Barr tells me, however, that in Rozel's importation of *L. Bloomerianum ocellatum* there were about half the bulbs with white scales and half with purple ones, from which it was at the time inferred that there were two varieties, but on flowering, both sets of bulbs gave flowers precisely similar in colour. If our figure of the

bulb of *L. columbianum* were enlarged four or five times, it would stand very well for that of *L. Humboldtii*. Mr. Bull tells me that the bulbs of *L. Bloomerianum* proper are the largest of this type, being 6 in. or more long and 4 in. or 5 in. in diameter; whereas, the bulbs of the plant now known in gardens under the name of *L. Bloomerianum ocellatum* are rarely larger than those of *L. columbianum*, having, however, plumper, blunter scales.

[*L. HUMBOLDTII*, Roez and Leichtlin in *Daehartre Obs.*, p. 105.—California; figured in "*Regel Gartenfl.*" t. 72k; *Fl. des Serres*, t. 1973-f. Syn., *L. canadense*, var. *puberulum*, Torrey Bot. Whipple, p. 90; *L. Bloomerianum*, Kellogg, *Proc. Calif. Acad.*, iv., p. 60; *L. californicum*, Hort. Angl.]

24. *L. Roezli*.—Mr. Baker describes the bulb of this plant as being perennial and rhizomatous, "and it is further said to be readily distinguished in habit from allied forms by having narrow acute leaves, and perianth segments."

[*L. ROEZLI*, *Regel Gartenfl.*, t. 667.—California, Utah. Syn., *L. canadense*, var. *Hartwegi*, Baker in *Gard. Chron.*, 1871, p. 321.]

25. *L. monadelphum*.—This plant has a large, ovoid, pointed, perennial bulb, the scales of which are narrow, lance-shaped, closely imbricate, and pointed, most of the inner scales being white, but the outer ones yellow, often tinged with pink or purple where exposed. Our figure of the bulb of *L. carniolicum* var. *albanicum*, very nearly resembles that of *L. monadelphum* Szovitsianum, except that the yellow scales of the last-named are rather broader; the general contour and appearance, however, are identical.

[*L. MONADELPHUM*.—Var. 1. *Monadelphum* proper.—Caucasus and Asia Minor; M. Bieb. *Cent. Ross.*, t. 4; *Bot. Mag.*, t. 1405; *Reich. Exot.*, t. 89; *Regel Gartenfl.*, t. 733. Syn., *L. Loddigesianum*, Schultes fil.; *Lemaire Jard. Fleurs.*, t. 201; *Paxt. Flow. Gard.*, t. 58; "*Flore des Serres*," t. 507-9. Var. 2. *Szovitsianum*.—Asia Minor; figured in *Fisch. & Lall. Regel Gartenfl.*, t. 536; "*Flore des Serres*," t. 507-9. Syn., *L. colchicum*, Stevcn.]



26. *L. carniolicum albanicum* (Europe); natural size; cultivated bulb.

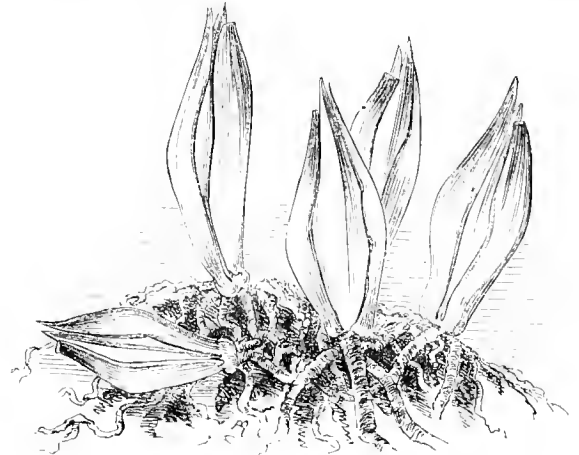
26. *L. carniolicum*.—The bulb of this plant is the size of a duck's egg, globose, or slightly pointed, the scales being broad, lance-shaped, and $\frac{1}{2}$ in. to $\frac{3}{4}$ in. in breadth. Sometimes, however, we find enormous bulbs of this species 5 in. to 7 in. in diameter, formed of several centres, each of which throw up a stem. The colour of the scales is generally white or yellowish, the more exposed slightly tinged with purple. The bulbs of the albanicum variety are more ovoid in shape, tapering to a point above, and the scales are twice as numerous and as long (say about $2\frac{1}{2}$ in. to $3\frac{1}{2}$ in.), but only half as broad, many of the scales being only $\frac{1}{4}$ in. to $\frac{1}{2}$ in. in breadth, and of a bright yellow colour, as in *L. Martagon*.

[*L. CARNIOLICUM*, Bernhold.—Lombardy, Austria, and Turkey. Var. 1. *Carniolicum* proper.—Same distribution; figured in

Reich. Ic. Germ., t. 990. Syn., *L. chalcidonicum*, Linn. in part; *Jacq. Fl. Austr. Supp.*, t. 20. Var. 2. *Albanicum*.—Albania and Transylvania.]

27. *L. ponticum*, L. Koch.—Asia Minor; not known in cultivation.

28. *L. polyphyllum*.—This is by no means a well-known Lily, although I learn from Mr. M'Nab that it has been growing in the open ground in the Botanic Garden at Edinburgh for several years, and has flowered pretty regularly. Seedlings



23. *L. polyphyllum* (Indian); seedling bulbs, about four years old colour, white.

from the first flowering specimen have also since bloomed, no difference having been observed in their growth or flower, although other species were flowering near the parent plant at the time it was in blossom. It has been grown in other gardens, and was described by Royle as *Fritillaria polyphylla*, under which name it was received at Edinburgh; and this may have prevented many Lily growers from obtaining the plant, thinking it belonged to a not over beautiful and allied family, but that it is essentially a Lily in bulb and flower there can be no doubt. My sketch of the singular

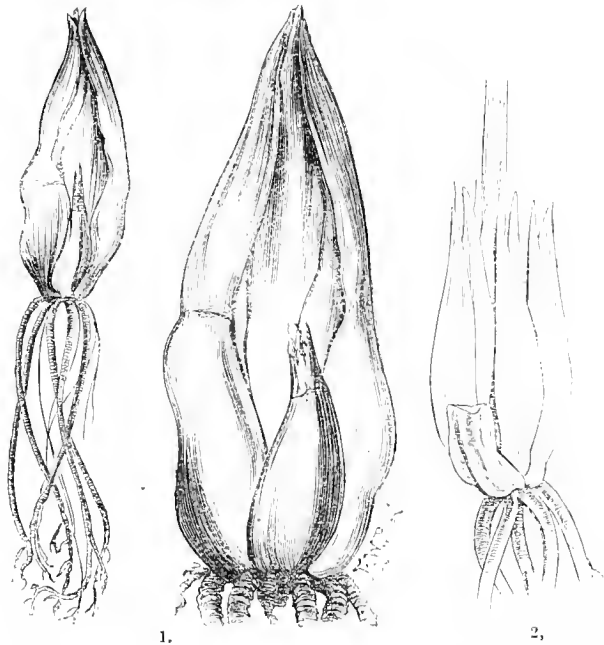


25. *L. (Fritillaria) polyphyllum* (India); full-sized cultivated bulb from Colchester.

narrow seedling bulbs was made at Mr. Barr's ground in January of the present year. I sent a copy of it to Mr. M'Nab, who has succeeded so well in the open-air culture and seed propagation of the plant; he in reply remarks, "The bulbs are certainly very distinct, quite of the shape you figure, but somewhat larger." Mr. H. J. Elwes, who also saw a copy of the sketch, tells me that he has succeeded in raising seedlings from the Edinburgh plants, the bulbs of which now much resemble the drawing here given; and the same gentleman adds, "It is one of the most unmistakable bulbs; I know no other like it, except perhaps that of *L. oxypetalum*, which I only know from the figure in the '*Botanical Magazine*' fifteen years or more ago. The bulb of *L. polyphyllum* attains 3 in. or 4 in. in length when fully grown, and it may be distinguished at the age of one year

from seed with certainty." *L. polyphyllum* is said by one of Mr. Barr's correspondents at Mussoorie to belong to the Turk's-cap group; grows in good, tolerably moist vegetable mould on a slope in thick shrubbery, and flowers there in June at an elevation of 6500 ft. Quite recently bulbs of this species have been imported and sold at Stevens', so that it will doubtless soon become better known in our gardens if not coddled to death, as happens to so many plants and bulbs from elevated and consequently comparatively cool habitats within the tropics. Mr. Horseman tells me that the imported bulbs of this plant acquire a large size in the open air at Colechester. Our illustrations represent seedling bulbs of this plant when about four years old, a well-developed flowering bulb as grown at Edinburgh, and also another grown at Colechester.

[*L. POLYPHYLLUM*, Royle.—Western Himalayas, temperate region. Syn., *L. punctatum*, Jacquemont, Duchartre Obs., p. 77.]



28. (Fig. 1.) *L. (Fritillaria) polyphyllum* (India); cultivated bulb from Edinburgh Botanic Garden. (Fig. 2.) *L. (Fritillaria) oxypetalum* (Indian); flowering bulb from Bot. Mag., vol. 73, t. 4731; colour, white.

29. *L. chalcedonicum*.—A well-known and beautiful plant, the most vivid in its scarlet colour of all the Lilies. There are now several varieties, the plant having been grown from seeds by some of the Dutch bulb-growers. Considering the size of the plant and comparatively small area of leafage, the bulb is enormous, being as large or larger than a duck's egg, ovoid in form and pointed, the scales being lance-shaped and closely imbricated, some of the outer ones being slightly constricted about the centre. Many of the bulbs are 3 in. to 4 in. in length, and fully 3 in. in diameter, the colour of the inner scales being whitish, and the outer ones yellow, some suffused with purplish-pink or orange.

[*L. CHALCEDONICUM*, Linn.—Greece, Ionian Islands, Asia Minor; figured in Bot. Mag., t. 30; Red., Lil., t. 276; Reich., Ic. Germ., t. 453, not of Jacquin.]

30. *L. pyrenaicum*.—This is sometimes considered as being only a robust, broad-leaved, large-flowered form of *L. pomponium*, with which plant it agrees very closely in bulb structure, the bulbs being 2 in. or 3 in. in diameter, ovoid, formed of numerous yellow or brown-stained scales.

[*L. PYRENAICUM*, Gouan.—Pyrenees; figured in Red., Lil., t. 145; Reich., Ic. Germ., t. 992. Syn., *L. flavum*, Lam.]

31. *L. callosum*.—A distinct little scarlet-flowered Japanese Lily, recently introduced to our gardens, and evidently by its growth and bulb structure nearly allied to *L. concolor* and *L. tenuifolium*. The bulbs are rarely larger than a Walnut, formed of a few—say ten or twelve—fleshy-white, somewhat fiddle-shaped scales. Our sketch was made from a large but typical specimen from Mr. Bull's stock, but some of the smaller bulbs are more ovoid, and have the closely imbricated, clasping scales, so characteristic of *L. tenuifolium*.

[*L. CALLOSUM*, Sieb. & Zucc.—Japan and Loo Cheo; figured in Fl. Jap., t. 41.]

32. *L. testaceum*.—This distinct plant has a globose bulb when fully grown the size of a large Orange, the broadly lance-shaped, fleshy scales being 2 in. to 3 in. in length, and closely imbricated in freshly-dug bulbs, more open and loose in the old flowering specimens, and whitish in their colour, some of the outer scales becoming rosy-purple on exposure. Large bulbs after flowering



31. *L. callosum* (Japan); from an imported bulb, natural size.

give rise to three or four centres, a not uncommon occurrence, however, in other vigorous-habited Lilies. The plant is unknown in a wild state, and is thought to be a hybrid between the common white *Lilium candidum* and *L. chalcedonicum* or Scarlet Turk's-cap Lily.

[*L. TESTACEUM*, Lindl., Bot. Reg., 1843, t. 11.—A garden hybrid between *candidum* and *chalcedonicum*; figured in Paxt. Mag. Bot., 1843, p. 221; "Flora des Serres," t. 39; Regel Gartenfl., t. 319. Syn., *L. excelsum*, Hort.; *L. isabellinum*, Kunze.]

33. *L. Leichtlini*.—I have not seen the bulbs of this plant, but they are described by Mr. Baker as being "small, perennial, globose; scales few, broad, acute, thick, closely imbricated." *L. Leichtlini majus* is said by Mr. Baker to be a large and splendid deeply-coloured form of *L. Maximowiczii*, of which the Colechester New Plant and Bulb Company sent me a well-developed bulb, from which it



33. *L. Maximowiczii* = *L. Leichtlini majus* (Japan); cultivated bulb, natural size; colour, soft yellow, like an Ash-leaf Kidney Potato.

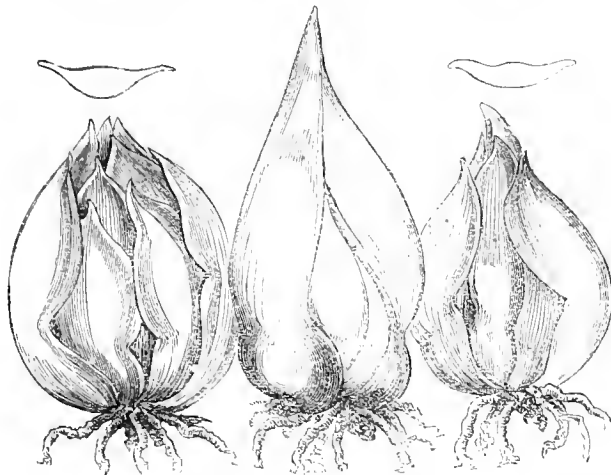
appears to me, together with what I gather from Baker's description that the whole group will have to be placed under *L. tigrinum*. *L. Leichtlini majus* or *L. Maximowiczii* has a sub-globose or oblate bulb the size of an Orange, and is composed of about thirty broad, closely-imbricating scales of a yellow tint; indeed, the texture of the outer scales is just that of a smooth Kidney Potato. Our figure is an exact representation of a well-developed bulb.

[*L. LEICHTLINI*, Hock. fl.—Japan. Var. 1. *Leichtlini* proper. *L. Leichtlini*, Bot. Mag., t. 5673; Ill. Hort., t. 540; "Flora des Serres," t. 1736; Belg. Hort., 1869, t. 11; Floral Mag., t. 509. Var. 2. *Maximowiczii*. *L. Maximowiczii*, Regel Gartenfl., t. 596. Var. 3. *Pseudo-tigrinum*. *L. Pseudo-tigrinum*, Carrière, Red. Hort., 1867, p. 110, with a figure; "Regel Gartenflora," t. 664.]

34. *L. pomponium*.—A pretty yellow, orange, or red-flowered Lily, similar in habit to *L. ohaleodonicum*, but with narrower leaves. The bulbs are ovoid, formed of closely-imbricated, yellow scales, which vary from 2 in. to 3 in. in length, the whole bulb being 2 in. to 3 in. in diameter.

[*L. POMPONIUM*, Linnaeus.—Lombardy, and the south of France. Syn., *L. pomponium*, Bot. Mag., t. 971; Reich., Io. Germ., t. 991. *L. angustifolium*, Mill. *L. rubrum*, Lam.]

35. *L. tenuifolium*.—The bulbs of this plant are very strong and variable, and when full-grown, perhaps more nearly resemble those of the Indian *L. polyphyllum* than any other species. They vary in shape from being almost cylindrical and very narrow (scarcely thicker than a pencil) to more swollen, fusiform bulbs, 1 in. in thickness and over 2 in. in length. The few waxy-white scales are not only imbricated closely, but firmly clasp each other, just like the infolded central leaves of the American



17. *L. concolor* (China and Japan); natural size, from a well-grown cultivated bulb; colour, white. [See p. 137.]
 35. *L. tenuifolium* (Siberia) from a cultivated bulb, natural size; colour, waxy white.
 16. *L. pulchellum* (Siberia); from an imported bulb, natural size; colour, white. [See p. 137.]

Agaves. The fusiform bulbs of this plant slide into the ovoid form, as seen in the bulbs of *L. concolor* and its varieties, these being intermediate in shape between the elongated bulbs of *L. tenuifolium* on the one hand and the more globose-shaped bulbs of *L. callosum* on the other.

[*L. TENUIFOLIUM*, Fisch.—Siberia. Syns., *L. pumilum*, Red. Lil., t. 378; *L. linifolium*, Hornem.; *L. puniceum*, Sieb.]

In concluding these remarks on Lily bulbs, it may be as well to give a short summary of the whole. Lily bulbs vary in form and colour, according as the soil in which they are grown is dense or porous; but fresh bulbs of all the distinct types or species are easily recognizable, and that even from the earliest stages after propagation by means of seed. The practice of drying off Lily bulbs, however convenient or necessary it may be for trade purposes, is a bad practice, and should never be adopted by cultivators, inasmuch as no well-planted Lily bulb is injured by the rainfall and cold of our climate, although it may be necessary to protect its young growth occasionally. The typical forms of Lily bulbs are ovoid, with closely-imbricated and lance-shaped scales; globose or orange-shaped, with broad, oblong, pointed scales; rhizomatous, having the scales either distributed regularly along the upper part of the rhizome, or gathered together in the form of bulbs at indefinite intervals. The typical scales of Lily bulbs are lance-shaped, or oblong and pointed, some of the Japanese, one European, and several American kinds having much thickened, articulated, or jointed scales. Well-nourished flowering bulbs increase in size by the increment or extension of new buds or growth; if starved, however, the bulbs become absorbed in flowering and of course die. The propagation of Lilies is effected by seeds, bulb-division, planting old bulb scales, or by layering the flowering-stems after having removed the young flower-buds. The Dutch, English, and Japanese have for many years been engaged in producing seminal varieties; hence some of the natural lines of demarcation which formerly existed between the species have become indistinct.

Alphabetical List.

The numbers refer to the species. The names to which an asterisk (*) is attached are the adopted ones; the others are synonyms.

- *albanicum, 26
- *album, 9
- *alutaceum, 14
- andinum, 11
- angustifolium, 34
- *armeniaceum, 14
- *atrosanguineum, 14
- aurantiacum, 14
- auratum, 19
- autumnale, 21
- avaceum, 19
- Bartrami, 7
- Batisua, 3
- *bicolor, 14
- biligulatum, 14
- Bloomerianum, 23
- *Bourgæi, 21
- *brevifolium, 14
- Brossarti, 19
- *Browni, 4
- bulbiferum, 14
- Buschianum, 14
- californicum, 23
- *callosum, 31
- *canadense, 20
- *candidum, 6
- *carniolicum, 26
- carolinianum, Cat., 13
- *carolinianum, Mich., 21
- *Catani, 18
- *Catesbaei, 13
- *chalecedonicum, 26 & 29
- *citrinum, 14
- colchicum, 25
- *columbianum, 22
- *concolor, 17
- *cordifolium, 1
- *coridion, 17
- *croceum, 14
- dalmaticum, 18
- *dauricum, 14
- Dexteri, 19
- excelsum, 32
- *eximium, Court., 2
- eximium, Hort., 9
- flavum, 30
- *Fortunei, 8
- *fulgens, 14
- *giganteum, 1
- *glabrum, 18
- hematochromum, 14
- Hartwegii, 24
- *hirsutum, 13
- *Humboldtii, 23
- isabellinum, 32
- Jama-juri, 2
- japonicum, D. Don., 3
- *japonicum, Thunb., 4
- lanceifolium, Hort., 9
- *lanceifolium, Thunb., 15
- lateritium, 14
- *Leichtlini, 33
- linifolium, 35
- *Lishmanii, 8
- Loddigesianum, 25
- *longiflorum, Thunb., 2
- longiflorum, Wall., 3
- *maculatum, 19
- *Martagon, 18
- *Maximowiczii, 33
- *medeoloides, 12
- Metzi, 2
- Michauxii, 21
- Milleri, 18
- minus, 22
- *monadelphum, 25
- *nanum, 5
- *neilgherrense, 2
- neilgherriicum, 2
- *nepalense, 5
- odorum, 4
- *pardalinum, 21
- pardinum, 14
- *Partheneion, 17
- parvidorum, 22
- *parvum, 20
- pentasyriacum, 14
- *peregrinum, 6
- *philadelphicum, 11
- pictum, 14
- *polyphyllum, 23
- *pomponium, 34
- ponticum, 27
- *pseudo-tigrinum, 33
- *puberulum, Leicht., 20
- puberulum, Torr., 23
- *pulchellum, 16
- pumilum, 35
- punctatum, Jacq., 28
- punctatum, Lem., 9
- puniceum, 35
- *pyrenaicum, 30
- *Roezli, 24
- *roseum, 9
- rubrum, Lam., 34
- rubrum, Mast., 9
- sanguineum, 14
- Sayi, 22
- *sinicum, 17
- speciosum, Andr., 8
- speciosum, Link., 9
- spectabile, Link., 14
- spectabile, Salisb., 13
- *splendens, 8
- staminosum, 14
- *striatum, 6
- *superbum, 21
- *Szovitsianum, 25
- Takesima, 2
- *Tametano, 9
- *tenuifolium, 35
- *testaceum, 32
- *Thunbergianum, 14
- *tigrinum, 8
- *triceps, 5
- tubiflorum, 2
- umbellatum, 11
- venustum, 14
- vestale, 9
- *Walkerii, 29
- Wallichianum, Wight, 2
- *Wallichianum, Seelites fl., 3
- *Washingtonianum, 7
- *Wilsoni, 14
- *Wittei, 10

F. W. B.

Water Weeds.—There is a piece of ornamental water at this place quite overgrown with water weeds, which we are anxious to eradicate without having recourse to "mudding the bottom," an operation which is expensive. Will some of your correspondents, therefore, who may have had lakes in a similar condition, tell us how we can best get rid of the weeds? They consist of the American water weed (*Anacharis alinastrum*) and a species of *Chara*; the *Anacharis* is almost overpowered by the *Chara*, which grows densely and rapidly all over the bottom of the lake. All ordinary means for keeping down water weeds, such as cutting and running off the water, and drying them up, have been tried without much effect. Even although the water was run off for two months during the hottest and driest period of last summer, they came up in a short time afterwards as thickly as before. Poisoning cannot be resorted to, owing to the lake being the source of a small stream.—R. G., *Sevenoaks*.

Small Pots best for Early Hyacinths.—I have this season grown large quantities of Hyacinths, and I find that for early kinds large 60-sized pots are the best, both as regards size of spike and bulb—that is, in the case of Hyacinths grown between the 25th of December and the first week in February. Of Hyacinths for exhibition, I know nothing; but for purposes of early decoration give me small pots.—R. GILBERT, *Burghley*.

Filing Canna Seeds before Sowing.—For several years I have sown a collection of *Canna* seeds, but have never been able to get more than some half-dozen plants from each collection. The seeds were usually steeped for twenty-four hours in warm water before they were sown, and yet they refused to vegetate. This year, before sowing them, I filed each seed with a small file just sufficient to break the hard seed case, and now I find that quite 80 per cent. of them are growing.—H. J. C., *Grimston*.

Wintering Alternantheras.—I lift my supply of old plants of these before they get injured by cold, and plant them in boxes filled with light soil; a close frame suits them until they are established, when they are removed to the back shelves of Pine-houses, and in spring they furnish good strong cuttings by the thousand. I strike several hundreds in one box by only filling the boxes half full of soil and inserting the cuttings as thickly as possible, covering them with small glazed sashes or single squares of glass, a plan by which a cutting frame is readily extemporised.—J. G.

Weeping Willows in Spring.—In Mr. Dancer's nursery at Fulham are large beds planted with Weeping Willows, having stems from 8 ft. to 10 ft. high, and heads of long pendent branches reaching nearly to the ground. These are now furnished with myriads of white, woolly-looking buds, which are just beginning to expand, and which, when swayed by the wind, sparkle like silver among the countless, brown, whip-like branches, forming a feature well worth attention at this time of the year.—S.

THE KITCHEN GARDEN.

FORWARDING EARLY CROPS.

Potatoes.—Much may be done between now and May to accelerate early vegetable crops, and there are numerous simple devices for doing so that come within reach of all. We shall speak of the Potato first, as deserving most attention in that way, and also because it is more amenable to such treatment than many other vegetables. A chief point in securing early Potatoes is to begin with early varieties, or varieties that grow early to a moderate size. Of this description is the kind called *Mona's Pride*; there are sorts that ripen as early or earlier, but the cultivator should place it first on his list of earlies on account of the rapid growth of the tubers. It is one of the largest-sized early Kidneys, not producing many tubers to a root, but they are all large. Some of the Early Ashleaves are too prolific for early croppers, producing too many small tubers, unless the sets are disbudded at planting time. For an early crop a south border, or one sheltered in some way on the north side by trees or a fence, is necessary, and it should slope sharply to the sun—be quite steep, in fact—and be composed of rich, light soil. These are important points; the angle of the ground to the sun's rays makes much difference in respect of the temperature of the soil, and a rich, light, and rather dark soil is necessary, because it absorbs the heat quickly, and stimulates growth. Early Potatoes planted in a lumpy, stiff soil, produce no crop worth speaking of compared to those planted in a fine, mealy compost, consisting of peat, leaf-mould, and loam—the refuse, for example, from the potting bench, or old top-dressings of Vine borders, decayed hot-beds, or anything of that kind that will work up into the surface-spit of the border, and make it loose and permeable to the roots of the plants. The 1st of April is almost early enough to plant out Potatoes that have been sprouted in heat, because they are sure to suffer from the slightest frost if not protected. The sets may be planted about March 1 in old trays or baskets, and covered with soil, about 1 in. or 2 in. deep, and placed in any structure warm enough to start them; light is of no consequence until they come up. In a moderate temperature they will have grown about 4 in. by the end of March, and should be at once planted out in rows about 12 in. or 18 in. asunder, and 6 in. between the sets, burying them sufficiently deep to leave the tops of the sprots just peeping through the soil. Only one shoot, and that the strongest, should be left to each set, for the distance between them and the rows will not allow of more; but the chief object of disbudding them to one shoot is to secure good-sized tubers; many stems mean many Potatoes, but small ones. One good stem is worth half-a-dozen weakly ones, and if placed at the above distances apart, a crop very good in proportion to the extent of the ground planted will be the result. The old common Ashleaf produces good tubers in this way, though naturally a small kind; but it is early and of good flavour, and the tops being small may be grown in little space.

Cauliflower.—By potting a few scores of the autumn-sown plants now in 8-in. or 9-in. pots, and growing them on in a cold frame, Peach screen, or other cool structure, plunging the pots in soil or ashes, and planting them out on a warm border about the first week in April, or a little earlier in warm localities, they will head about a month before the other plants of the same sowing, though they may have the protection of handlights all the winter and spring. The plants should be potted loosely in rough, light soil, and while they are under glass they should not be pashed in the least, but simply protected from frost and cold winds, and freely exposed on fine days. Under this treatment they will grow freely without becoming drawn or lanky, and will not be disposed to "button" after being planted out. In many gardens in Scotland, as far north as Aberdeen and Banff, even Cauliflower is produced in this way as early as in the south of England. Any kind of glass protection is extemporised for the purpose, such as an old light or two reared against a warm wall, and the ends closed up from winds with mats or packing of any kind. The Cauliflower, if sheltered from cutting winds, will make considerable growth during the winter, but it needs a little protection overhead also to have good large plants—half-grown, that is to say—fit for going out in April. They should be hardened off by free exposure to the air a week or ten days previous to planting out, and when planted the roots should be disturbed as little as possible, and the plants should be buried up to their collars, as an earthing up, to keep them from being blown about by the wind.

Peas.—The most common way of forwarding these is to sow in small pots or in long, narrow boxes or drain-tiles some time in February, and plant out about the beginning or middle of March on a warm border. A glass structure is not essential to the raising of Peas in this way, as they can be started in a kitchen or warm shed where it is not quite dark, and afterwards hardened off and greened

on window-sills or in some sheltered nook out-of-doors; but if they can have the protection of glass, it is better and more convenient. The Peas should be sown in 5-in. pots, and planted out when 3 in. or 4 in. high. Six good pots will make a row 7 ft. or 8 ft. long across a border, if the balls be opened out a little. The Peas should be buried to within 1 in. of their tops and staked at once. Peas forwarded in this way do not, however, bear abundantly, and it requires many pots to produce good gatherings for a while, or until the next sowing comes in. A more abundant and almost as early a crop may be produced by sowing a single row along the bottom of a south wall. If the soil be of a good, rich character, the fact of fruit trees being on the wall will not affect the growth of the Peas, though of course the latter must grow out towards the sun and be supported by stakes, as in such a situation they get the full benefit of the sun, both roots and tops, whereas when they are sown across the border in the usual way the rows shade each other considerably. By the first method they pod a week or ten days earlier; the row being near to the wall, within 12 in. or 18 in., perhaps partially sheltered from rain, the soil is apt to get dry about the roots should the weather be dry in April or May, and water must therefore be supplied copiously at such times.

Lettuces.—The secret of getting these forward early consists in planting or sowing in a very light and rich, but not a rankly manured soil, and in a warm situation. The Early Hammersmith is still one of the best early sorts, as it is without doubt the hardiest. The worst fault is that it runs to seed early—autumn-sown plants particularly—especially if transplanted at this season. For this reason I always prefer to sow seed, and I feel sure that spring seedlings grow faster and make larger hearts when they are not transplanted. A strip of good soil along the front wall of a hothouse is an excellent place, if there be a sufficient depth of soil, the heat from the wall making a sensible difference in the temperature of the ground for several feet outwards. The seeds should be sown in drills 6 in. apart, and the young plants should be thinned out as soon as they can be laid hold of—first to 1 in. or 2 in. asunder, and the last 3 in. to 6 in. This is not allowing much room, but it is enough to produce small, compact heads. When the plants are growing they should never be allowed to get dry at the roots, but kept constantly moist, in order to encourage a quick succulent growth and early heading.

Radishes.—This crop may be sown under the same conditions as Lettuces, and of course the early frame kinds should be employed. If they can be protected by a cloche or hand-light top, all the better; but the chief point in Radish culture is to thin early to 2 in. or 3 in. apart. The plants begin to make roots immediately, if well thinned. A Radish with a big top is seldom good.

Carrots.—Like Radishes, the tubering of these is greatly accelerated by early thinning, though we frequently see them standing unthinned till the tops are 1 ft. high, and no root to them worth mentioning. Such neglect is the ruin of the crop. They should be thinned partially as soon as they can be easily laid hold of, and, after danger from grub is over, finally thinned out to form 4 in. to 6 in. asunder each way, in the case of the Early Horn varieties, and from 9 in. to 1 ft. with the larger kinds. The Carrot is very easily forced if not subjected to a high temperature, and is not liable to run to seed like a Turnip. They may be sown under glass, or in any warm spot, in a tolerably deep soil, and liberally watered, and thinned as soon as possible. The best early sorts are the French Early Horn and the Early English Horn. The last is the largest and best, but the first is the earliest.

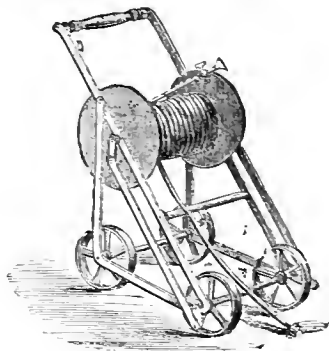
Kidney Beans.—The first crop of these abundantly repays the trouble of forwarding. They should be sown in 4-in. or 5-in. pots, and sushed on in a temperature of 60° or thereabouts till their seed-leaves are fully developed and the second ones are just showing, when they may be planted out in a warm situation, and in rows 18 in. apart, and 3 in. between the plants. It is needless planting out, however, before the weather is warm enough to continue their growth, and this is not often the case before the middle of May in favoured localities, while June is soon enough in the north. A light and warm soil greatly encourages growth and early fertility, and the transplanted crop should be as much favoured in this way as possible.—"Field."

Peas.—In the paper concerning Peas read by Mr. Pavey (see page 120) I observe with surprise that Laxton's Superlative, a notoriously valueless Pea, is mentioned as one of that raiser's best. So far from that being the case, it has not one good point to recommend it, and in a few years will have died out. On the other hand, Omega is described as deficient in flavour; while Omega has been correctly classed as a dwarf *No Plus Ultra*, and is undoubtedly not

only a delicious wrinkled marrow, but in the matter of flavour the best of Laxton's kinds. The classification of Eugenie as a late Pea is quite out of character, as it is one of the earliest of marrows, but although an immense bloomer and producing an abundance of pods, yet these do not more than half fill, and therefore the sort is but little grown. Such a fine new early Pea as William the First is not mentioned in the paper, but a great deal is made of Kentish Invicta. The most favoured kinds for ordinary gardens and for market cultivation are Dwarf Unique, one of Laxton's best dwarf sorts, a first-early Moltm in Parvo, a delicious dwarf marrow; these can be succeeded by Advancer and Premier, and for field-sowing, Harrison's Glory. In succession should come James' Prolific, G. F. Wilson, Veitch's Perfection, and Omega, the whole forming a selection that would give entire satisfaction to any grower; for fine quality added to dwarfness it would be impossible to excel it.—D.

HOSE COLLECTOR.

The accompanying woodcut represents a new self-coiling hose reel lately invented by Mr. Peirce, of Oxford Street, which promises to prove useful in gardens in which India-rubber hose is used in quan-



tity. Under this arrangement, the machine, while being pushed along, picks up the hose evenly, and thus preserves it from being cut or otherwise injured by being drawn across gravel walks and other rough surfaces.—S. C.

Judging Cottage Gardens.—Can you inform me what are the principal points to be considered in judging cottage gardens, particularly allotments, as our society intends giving prizes for the best-kept gardens, and about how often should they be visited?—J. W. L. [According to my view of this subject the objects sought to be obtained are threefold, and may be classed in the following order, according to their relative importance:—(1) To improve the quality and quantity of cottage garden produce. (2) To encourage the cultivation of a better and greater variety of vegetables. (3) To inculcate order, method, and neatness. Taking the divisions as here set down, to the first I should award three points as a maximum, to the second two, and to the third two, making seven in all; but all competitors should be required to cultivate at least a certain minimum number of distinct kinds of vegetables, say not less than six or eight. In judging cottagers' produce, size, if it does not degenerate into coarseness, should be allowed to carry more weight in decisions than is customary or desirable in the case of vegetables destined for better-class tables. The judges should visit the gardens at least three times between the middle of February and the middle of August, keeping of course the time of their intended visits secret.—E. H.]

Keeping Potatoes undug in the Ground.—Owing to the heavy rains which we had this autumn, some Potatoes, not of so much value as others, were left undug from day to day in the hope that dry weather would set in, but in vain, and at last the entrance to the field was closed for several weeks by a huge pool of water, so that the Potatoes had to take their chance until the end of January, when quantities of both President (White Kidney) and Wonderful (Red Kidney) were lifted, washed in a tub, and laid out to dry for storing. Although both second early kinds, the cold wet state of the soil had kept the tubers from starting into growth, and samples of each when cooked were in all respects as sound, as well-flavoured, and as mealy as if they had been lifted at Michaelmas. Both kinds had been ripe more than five months, and during a considerable portion of the time almost covered with water. President is reputed a

delicate Potato, the flesh being of softest quality, pure white, and as mealy as a Regent; whilst Wonderful Red is equally good, with flesh of a yellow colour, and of good flavour. I do not mention this as indicating that it is desirable to allow Potatoes to remain in the ground, but merely record it as an interesting fact.—A. D.

BOILERS AND HOT-WATER PIPES.

In answer to "A. R. H." (see p. 100), I would state, that I had no reason for finding fault with the working of my apparatus. I only wished to guard the inexperienced against falling into the common error of burying connecting pipes in such a position as to render them useless, liable to injury, and subjected to premature decay. As regards the waste of heat by means of long connecting pipes, I could not adduce better evidence than "A. R. H.'s" own words, which show that he has a boiler-heating piping enough for three houses, but really only warming two; more than a third of the pipes is used merely for the conveyance of hot water. Surely this allows an ample margin for improvement, a circumstance by no means altered by the boiler previously in use having proved a failure. But in what way the original "simple and wasteful" boiler could be considered a failure I am at a loss to guess, seeing that by "A. R. H.'s" own showing, when set properly, it is capable of doing all the work of the improved one. Does "A. R. H." consider "simple and wasteful" to be synonymous terms, and must a boiler be complicated to be economical? I have always understood that complicated boilers or machinery of any kind in daily use required skilled labour to keep them in good working order; while, on the contrary, all flues and surfaces exposed to the action of the fire should be so simply constructed that any ordinary labourer would find no difficulty in cleaning them out when required; for, although on the first trial with everything new and clean, all may go well, success will eventually depend on the facility with which they can be worked by ordinary attention. "A. R. H." says that the new boiler burns so fiercely that scarcely any ashes are left; yet the fire lasts any length of time (in one case, twenty-two hours). This seems to be rather a contradiction, as slow combustion and duration of heating power generally go together in saddle, tubular, or any other form of boiler. The connecting pipe mentioned (1½ in.) would have hard work to keep any quantity of full-sized piping up to a heat sufficient for any practical purpose, but in the dimensions given, the work expected to be performed is very small, and the required temperature is not given. I cannot congratulate "A. R. H." on having seen the last of his troubles, if he follow out his resolution to consult advertisements for his information in future operations. In doing this he will probably be more mystified than edified. My own knowledge has been acquired by actual experience day and night in all weathers, and, with lantern in hand, in the charge of a large forcing establishment, one has the opportunity of studying the merits or demerits of rival claims of boilers to superiority in a more practical manner than even the makers themselves. I find boilers generally capable of performing the work allotted to them, but I am frequently defeated on account of the defective arrangement of the pipes and manner of setting, and, above all, by careless stoking, and want of timely attention to the furnace doors and dampers. JAMES GROOM.

Henham.

HOTHOUSE BUILDING AND HEATING.

In a recent issue of a contemporary, a writer makes reference to an article on this subject which appeared in THE GARDEN of December 9, and so alters some of the statements which it contained as to make them express quite a different meaning from that which they were intended to convey. "Among other things," says the writer in question, quoting from THE GARDEN, or pretending to do so, the boiler is to be "capable of heating the whole with ease up to a temperature of about 180° in the coldest weather," leaving the reader to suppose that it is the houses that were to be heated up to that point, whereas it was the pipes that were referred to. The sentence as it stands in THE GARDEN reads thus: "Stipulate that the boiler is to be of sufficient power, not simply to heat so many feet of piping as the maker puts it, but to heat the whole with ease up to a temperature of about 180° in the coldest weather," a piece of practical advice that any gardener will understand, but so rendered in your contemporary, by leaving part of the sentence out, as to be unintelligible. Surely it is not too much to expect one writer to quote another fairly! The same writer ridicules the suggestion that the woodwork should be painted from the first coat to the last on the premises, and not at the works. All that need be said on this head is that the builder can conform to such an arrangement without any trouble, if he be made a condition, and provided that shed-room be found for his men

the work in. We have no difficulty in the matter, at least, and it costs neither party either extra trouble or expense. Buying wood after it has received two coats of paint is worse than buying "a pig in a poke," for it is impossible to tell afterwards whether the wood is red deal or white deal, or only sap-wood; but people will learn to their cost, if they have to take off all the doors and sashes a few months after the house has been finished, to re-adjust them, and make them fit, and this after paying, perhaps, for every foot to be of the best seasoned red deal.—THE WRITER OF THE ARTICLE ON HOTHOUSE BUILDING.

EARLY PRIMROSES.

IN Mr. Frank Miles' remarks upon the different kinds of Primroses (see p. 124) there speaks at once the lover of nature, the artist, and the enthusiastic horticulturist. Age has not yet dimmed his eye with satiety, nor has he got chilled by the formal rules of the florist. If he could drop in here now when the sun is in the western sky, and its rays are flung vertically across the beds of many coloured Primroses, he would be not less pleased than on the occasion of his first visit. Primroses made very strong growth last autumn and are now flowering beautifully; the chief difficulties which they have to surmount are the frequent wet days by which their beauty is much impaired. It is not possible here to have the beds neat and trim as in some gardens for the necessities of trade, and propagation call for constant removals and re-arrangements: and just now I am re-planting the whole, because they are as far as possible grown in colours of white, sulphur, mauve, red, purple, and crimson; and my annual seedlings are selected in colours as they flower, and planted with the others in fresh beds every spring. The earliest flowers give but little seed, and if the transplanting, and necessary dividing be done at once, the plants quickly become re-established ere the later bloom is developed, and the seed crop is not materially affected. Of course in a trade establishment the sentimental must be largely governed by the practical, and whilst many would object to grow Primroses in formal blocks of colour, it is absolutely indispensable where seed is required for trade purposes. I wish it were possible to infuse a portion of Mr. Miles' artistic sentiment into that very prosaic body, the South Kensington Floral Committee; unsentimental as Peter Bell; a Primrose is to them a Primrose, and nothing more. Although one of the loveliest and earliest of hardy garden plants glowing with rich hues and full of beauty it awakens in the breast of these hardened florists no expression of pleasure or delight. They proceed to judge it by their hard and fast lines of form and eye, and if it have no thrum, or its edge be uneven, and its surface ruffled, turn from it with absolute indifference. When men's lives are passed in an atmosphere of Orchids, Ferns, Stove Plants, Roses, Pelargoniums, and similar brilliant and costly flowers, their tastes are hardly attuned to the appreciation of the beauty possessed by simple hardy flowers, much as they may be prized by common folks; even when very perfect forms of Primroses are submitted for their approval such as the pure white Virginia, the gloriously coloured Brilliant, or the lovely Rosy Morn, some member will probably say that "he has as good or better at home." If that be so, how is it that no other Primroses are ever exhibited before the Floral Committee except those grown at Bedford? Lovers of hardy plants on the Floral Committee should attend and protect the reputation of their *protégées*. Mr. Miles still differs from me as to the best time for sowing Primrose seed. In 1875 I sowed what was saved that year directly it was ripe, and the result was it came up most irregularly, and no doubt the few earliest strong plants in the seed-pan smothered many of the latest and probably best seedlings. Only a few flowered the following spring, and these the coarsest and least desirable. To a stranger this would have given the impression that the strain was a bad one, but all have bloomed this spring, and many very beautiful kinds are found among them. When sown in spring I find that the seeds germinate with regularity, and the following spring every plant flowers. Last August I sowed two pans of seed of *Primula cortusoides amœna*, one pan of home-saved, the other saved in the West of England; not one in either case germinated then, but now I see they are coming up freely, and no doubt in a week or two I shall have two pans full of seedlings. This leads me to the conviction that *Primula* seeds

require a season after ripening to become fully matured before germinating. I have seedlings of this beautiful *Primula* that will flower the second time shortly, and the pods from which the seed was saved belonged to flowers that had been fertilized with *Polyanthus* pollen. The variety produced exhibits the influence of the pollen. As to the assertion that "all white Primroses are really *Polyanthuses*," I am astonished that it should have been made. I have an abundance of pure white Primroses that never show the slightest evidence of the *Polyanthus* scape.

A. DEAN.

Bedfont.

FLOWER GARDEN ARRANGEMENTS.

IT may not be out of place at this season to refer to a style of bedding that seems growing in public favour, viz., the admixture of what are termed sub-tropical or fine-foliaged plants with the usual kinds of dwarf flowering plants, using the latter as the groundwork of the masses, and planting the taller growing foliaged plants at more or less wide intervals—according to size—amongst them. In large beds this arrangement gives elevation to the low masses of bright colours, and at the same time relieves and tones down the glare, and produces a more satisfactory effect. If only the larger beds in a large design were planted in this way, leaving the smaller beds to be filled as before with dwarf plants, the effect would probably be better than if too much be aimed at. This style of decoration admits of a good deal more freedom of treatment in parterre gardening than the common way of training the plants all to one level or nearly so—especially in the arrangement of the ground and the shape of the beds. Although it may be applied to the formal geometrical patterns, yet it is more in character, and looks better if treated more naturally, and if introduced in the way of raised beds and undulating glades of turf. There is no better way of setting out such beds than to take a long waggon rope, coil it into the most graceful outlines securing at the same time the size and position that will look best from that particular point from which it will be most often viewed. Where from the nature of surrounding objects it is practicable to adopt a picturesque arrangement, the elevations and depressions should be easy and graceful, not only for the purpose of securing the best general effect, but also with a view to economy in keeping up good order in mowing, &c., afterwards: abrupt elevation not only costs a good deal to keep in order when the work has to be done with scythe and shears, but the turf is more liable to become unsightly in hot weather.

The following are a few of the best mixed arrangements I noted down in different places as they came under my notice last autumn:—(1) *Wigandia caracasana* planted 4 ft. apart, with a carpet of the Variegated Cocksfoot Grass (*Dactylis glomerata variegata*) underneath, broad band of *Geranium Beauty of Calverdale*, and edged with Variegated Coltsfoot (*Tussilago farfara variegata*). The latter is a striking, broad-leaved, hardy plant that dies down and disappears in winter; its creeping underground stems often travel a considerable distance, sometimes coming up in spring several feet away; therefore the young pale buds must be carefully watched for when digging or hoeing is going on. (2) *Ricinus Gibsoni* (one of the most effective of the Castor-oil Plants) planted 3 ft. apart, groundwork variegated *Geraniums*, broad edging of *Viola Perfection*. (3) Tall Castor-oil Plants 4 ft. apart, *Prince's Feather* pegged down as groundwork, and two rows of *Iris Lindeni*, next *Golden Feather* 1 ft. wide, and two rows, nearly flat, of *Echeveria secunda glauca* outside. (4) Scarlet *Geraniums* with *Giant Hemp* 4 ft. apart, and broad band of *Gnaphalium lanatum* outside. This arrangement is only suitable for a large bed, as the *Hemp* will in good soil grow to a considerable height. (5) *Giant Fennel* with the flowers picked off 3 ft. apart, groundwork *Amaranthus melancholicus ruber*, and edging of *Crystal Palace Gem Geranium*, two rows. (6) Variegated *Maize* 2 ft. apart, groundwork *Scarlet Verbenas*, with broad edging of *Leucophytum Brownii*. (7) *Solanum marginatum* 3 ft. apart, groundwork *Coleus Verschaffelti*, edge broad band of *Golden Feather*. This is a very simple but an exceedingly rich combination. (8) *Solanum robustum*, a red-spined variety, 3 ft. apart, *Pink Geranium* groundwork, with broad

band of Cocksfoot Grass and Lobelias mixed round the edge. (9) *Ficus elastica*, small plants from 2 ft. to 3 ft. high, 2 ft. apart, Golden-leaved Geranium Crystal Palace Gem groundwork, edging Iresine Lindeni. (10) *Dracæna indivisa* 3 ft. to 4 ft. apart, according to size; groundwork of dark blue Heliotrope, and broad band of Variegated Mesembryanthemum, with single plants of *Lobelia intermedia*—a very dark-foliaged, scarlet-flowered variety—2 ft. apart along the centre of the Mesembryanthemum. (11) *Canna expansa*, 3 ft. apart, Golden Geranium groundwork, with broad edging of *Coleus Verschaffelti*. This list might be extended very considerably, and various combinations other than those named might be formed with the same materials.

Ferdinanda eminens is a very striking plant of rapid growth, but it must have a sheltered position, as the wind is destructive to its large, handsome foliage. Cannas must have high culture to be of much use the first season from seeds. Soak the seeds in warm water up to 90° for twenty-four hours before soaking. The Blue Gum (*Eucalyptus globulus*), the Giant Hemp, and the Giant Fennel, should be sown now in pots of light, rich soil, and plunged in a hotbed in a close frame or pit. If they be all placed together they may be covered with a sheet or two of brown paper till the seeds germinate, when they will need exposure to light. As soon as they are large enough to prick off, lift the pots out of the plunging material, but leave them standing on its surface for two or three days to harden a little in order that they may not sustain so much check when their roots are disturbed. Pot them singly into small pots in light, rich soil, return them to the hotbed, shade, and keep close for a few days till established. It will probably be necessary, or at least it will be desirable, to shift them again into 48-sized pots, or in some cases to 32's, so as to have good, strong, healthy plants, to put out about the end of May or beginning of June, according to locality. Mixed beds of foliaged plants, or the latter mixed with Fuchsias, tuberous-rooted Begonias, and both the golden and crimson varieties of *Celosia pyramidalis*, are very effective; the golden variety especially comes much brighter in the open air than in pots under glass. Tuberous-rooted Begonias are, I think, destined to become popular favourites both for mixed bedding and for autumn and winter decoration indoors. They are very easily raised from seed, especially if sown soon after it is gathered, and the second year following seedlings make good flowering plants, either for pot culture or for planting out round the edges of mixed beds of fine-foliaged plants or other positions.

E. HOBDAY.

Trollius Fortunei, and Where to Grow it.—There is one *Trollius* which one must have. Most of them are beautiful for a time, but *Trollius Fortunei* is one of the most glorious flowers the land produces, such an orange as a cloud lit by the last burst of the sun when it has passed beyond the horizon to the birth of another dawn; cadmium and rose madder together form the nearest approach on the palette. Try this *Trollius* in the bog garden in deep, turfy loam; in the hot border it would lose its leaves and half its brilliancy, and only show its true grace and fiery beauty in moister places. I first saw this plant at Kew, labelled with a puny little lath stick, growing in the hottest soil and looking miserable. When shall we have a great national botanic garden, with herbaceous plants growing as they ought to be grown, teaching us not merely the dry names of plants but the different modes of growing them. It is right that Kew should tell us how to grow *Disa grandiflora*, but it would benefit a larger number of enthusiasts to know how to grow properly plants within their reach that stand, without protection, an English winter. The labelling in those herbaceous borders at Kew is not to be commended, but the labelling of a certain bed of *Aquilegia* two years ago was a "caution." I suppose there is lack of means to keep these borders in proper order, but now that England-growing plants are asserting their rights, some pressure ought to be put on the authorities to make the collection representative of the great talent of the chief director.—FRANK MILES, *Bingham*.

Cleaning Honesty Pods (*Lunaria biennis*).—One of your correspondents says the outer pods of this plant are easily rubbed off between the finger and thumb; if so, I fear the operator will not have many inner pods to look at after such rough usage. I have grown the plant for decorative purposes for many years, and I find that the best plan is to take each pod when dry in the hand and pick off the outer skin with the finger and thumb, first bending the pod

at the bottom end, and then turning it over and serving the other side in the same manner. It is rather a tedious process, but the beautiful silvery inside is so brittle and easily cracked that it is the only way to get the other pods and seeds away without injuring it. In Herefordshire the common people call it the Money-till. If the seed be planted in August or September, the young plants will be a very fair size by Christmas time; they stand all weathers, and will bloom beautifully and be fit for vase decoration by next September.—C. E. B.

Ripe Strawberries in February.—We made our first gathering of Strawberries on the 16th inst., and after having gathered them, I must confess that I am almost ashamed to own them; certainly they are ripe Strawberries, and in February, too, but except for putting in jellies, or other kindred purposes, or for the mere name of having ripe fruit so early, I can see no real good to be derived from such very early forcing. The variety was Black Prince Improved, but whether it is worthy of the high eulogiums passed upon it by some growers, I am unable to say; it would hardly be fair to pass judgment so hastily after such a sunless winter as we have had, and as they have been forced in a pot Vine-house, where time is more an object than our expectations as to any particular quantity of fruit, perhaps we ought to take share of the blame on ourselves if the results are not exactly what they might otherwise have been. The plants were grown in 5-in. pots, which were thoroughly packed with roots by the end of the first week in July, and I have little doubt that had they been carefully forced, they would have yielded a fair crop of fruit by the end of the month. They have thrown up abundance of flower-spikes, but fertilization is so imperfect that the crop, although in every respect an abundant one, has an ungainly appearance. The second crop of flowers, as is always the case with Black Prince, is doing much better, but what are they compared to *Vicomtesse Héricart de Thury*, of which variety we have promise of a fine crop of good fruit by the second week in March, our usual time to commence gathering for the season?—W. HINDS, *Otterspool*.

Late Grapes.—In the remarks on late Grapes by Messrs. Wildsmith and Peed (see p. 104), there are some points with which I do not quite agree. I do not think that *Lady Downes* does best in a warm house; on the contrary, I have invariably found that when fire-heat was applied scalding was a certain result. The best *Lady Downes* I have ever seen were grown without any fire-heat at all, and where they got plenty of air and light. They will not stand the damp, close atmosphere in which *Black Hamburgs* delight. With regard to the respective merits of *Lady Downes* and *Alicante*, I think, with Mr. Wildsmith, that *Lady Downes* is, in point of flavour, much superior to *Alicante*, but it requires more care to grow it well, and it has not the appearance or size of bunch that *Alicante* has. I do not by any means consider *Lady Downes* second-rate in size of berry. I have often grown it with berries over 1 in. in diameter. Of course, if compared with such coarse-berried kinds as *Gros Colman* it is second-rate, but I do not think *Gros Colman* will ever be a popular Grape, as it requires too much heat, and the flavour is at best only second-rate. Mrs. Pince's *Black Muscat* will never be a popular Grape, as it does not colour well, and it is also a bad setter. I have tried it in every way, cool and hot, moist and dry, pruned early and late, but could never succeed in getting it anything but a dark brown. Were it not for these faults, it would be the best-flavoured and best-keeping Grape in cultivation.—H. H., *Hound House, Surrey*.

— It seems to me to be a mistake for any one to recommend a Grape on the score of general utility, simply on the strength of his own experience, confined, perhaps, to one place. If the testimony of Messrs. Grieve, Wildsmith, and others, as to the superiority of the *Lady Downes* Grape as a keeper wanted confirmation, I should say it might be furnished from hundreds of sources between John o'Groats and the Land's End. With me, *Lady Downes* is the best generally, but especially as a keeper; and it is the best in any place where I have known it receive a fair chance, and I have seen it, or known of its being grown, in many places from near the Grampians to far south of London, and both in the east and west. These remarks refer to the statements of Mr. J. Peed (see p. 104). As to the *Gros Colman* Grape, it is large-berried and fine-looking, but seldom or never well-coloured—at least I never saw a black berry of it anywhere, and it is the coarsest-flavoured Grape I ever tasted, though tolerable enough to any one who has not eaten good Grapes of any kind for some time previous.—J. SIMPSON, *Wortley*.

West's Patent Trellis.—Though this contrivance appears now to be patented, I would state that a trellis of the same kind, except that it was let down by means of chains, was erected here about fourteen years ago, but was never used after the first trial, so far as I am aware, for it was put up before I came here. Each Vine was let down singly, but by connecting the frames with a rod, all could be let down together. In practice it was useless and objec-

tionable, and I had the wires drawn out and fixed horizontally in the usual way, but the main rods still hang by their chains and hinges, and can be seen if there should be any doubt about the matter. The most serious objection to its use was that it had to be shorter than the rafters, in order to leave room to descend, as the Vinery is tolerably lofty, and the rafters are considerably longer than the width of the house.—J. SIMPSON, *Wortley, Sheffield.*

JAPANESE MUSHROOM CULTURE.

ONE of the industries of Japan is the cultivation of Mushrooms, which are exported in large quantities from that country, and some interesting information respecting them is given by Mr. Robertson in his Report on the Trade of Kanagawa, lately issued. The best of the edible species of Mushrooms are known as "Matsutaké" and "Shii-take." The difficulties attendant on preserving the former kind almost exclude them from the market for export; for not only do they decompose very rapidly, but even when successfully dried are nearly tasteless, and thus useless in cookery. The Shii-take species, however, have this peculiar excellence, that, though all but tasteless in their raw state, when they are dried they have an extremely fine flavour. The quantity that grows naturally on the decayed roots or cut stumps of the Shii Tree is not sufficient to meet the demand for them, consequently much skill has been brought to bear on their cultivation, notably by cutting off the trunks of the Shii and other trees, and forcing the growth of the Mushroom on them. Different varieties of Oak are most in favour for the cultivation of the Mushroom, the tree known as the Shii giving, however, the best results. About the beginning of autumn the trunk, about 5 in. or 6 in. in diameter, is selected and cut up into lengths of 4 ft. or 5 ft.; each piece is then split down lengthwise into four, and on the outer bark slight incisions are either made at once with a hatchet, or the cut logs are left till the following spring, and then deep wounds, 8 in. long, are incised on them. Assuming the first course to have been pursued, the logs, after having received several slight incisions, are placed in a wood or grove where they can receive the full benefit of the air and heat. In about three years they will be tolerably rotten in parts. After the more rotten parts are removed, they are placed against a rack in a slanting position, and about the middle of the ensuing spring the Mushrooms will come forth in abundance. They are then gathered. The logs are, however, still kept, and are submitted to the following process:—Every morning they are put in water, where they remain till afternoon, when they are taken out, laid lengthwise on the ground, and beaten with a mallet. They are then ranged on end in the same slanting position as before, and in two or three days Mushrooms will again make their appearance. When the logs are beaten so heavily that the wood swells Mushrooms are induced of a more than ordinary large growth. If the logs be beaten gently, a great number of small-sized Mushrooms grow up in succession. In places where there is a scarcity of water, rain-water should be collected in tanks. There is yet another plan. The cut logs are buried in the earth, and in a year's time are dug out and beaten as above described. The Mushrooms thus grown are stored in a barn on shelves ranged along three sides, with braziers lighted under; afterwards they are placed in small boxes, the bottoms of which are lined either with straw or Bamboo mats; these boxes are then ranged on the shelves and all approaches carefully closed. An even degree of warmth is thus diffused. The boxes ranged on the upper and lower tiers are constantly changed, so that the contents of each are thoroughly dried. Another mode of drying is to string the Mushrooms on thin slips of Bamboo, which are piled together near the brazier; the heat is well kept in by inverting a closely-woven basket over them. Dried Mushrooms, which are much liked by the Chinese and largely consumed by the Japanese, retain their flavour for a great length of time, and thus bear transport to any distance very well.

PARIS INTERNATIONAL EXHIBITION OF 1878.

THE horticultural department of this exhibition is to be open from the 1st of May until the 31st of October. A garden has been devoted to it near the Champ de Mars, and in this the different productions will be placed, according to their nature, either under glass, in tents, or in the open air. Prizes are offered for all kinds of garden produce, of which there will be a change every month, and those desirous of exhibiting must notify their intention of doing so six weeks before the commencement of each competition, and also mention the different competitions at which they intend showing, distinctly indicating the number of articles to be shown, together with the manner in which they are to be placed, and the space they will occupy. Fruit and forest trees, and any ornamental plants requiring to be planted in an isolated position or in groups on the lawn, ought to be planted before the 15th of May, 1877, and, if possible, this spring. Glass houses will be placed at the disposal of exhibitors on the condition that they undertake to keep them filled while the exhibition lasts. Examples of methods of cultivation pursued in different countries, or of any system or process which may prove of general interest, are admissible. Large plants or trees difficult to move may be placed at once either in the open air or under shelter. The competitions will be divided into two classes, principal and supplemental; and the highest prizes will be awarded to the principal competitions.

The following is the official list:—First series from May 1 to 15. Principal competition—Azaleas and Conifers. Supplemental—new greenhouse plants of every description and seedlings; hothouse plants such as

Orchids, Cactuses, &c.; intermediate-house plants and those for the decoration of apartments; tender bulbous plants, hard-wooded open-air plants, forced shrubs, Roses, Pæonies, &c. Vegetables and fruits either forced or in season. Second series from May 16 to 31. Principal competition—Rhododendron arboreum and trained fruit trees. Supplemental—hothouse plants such as Orchids, Ferns, &c.; intermediate-house plants such as Azaleas and Calceolarias; hardy plants such as Clematises, Roses, herbaceous plants, Pæonies, Ranunculuses. Forced fruits and vegetables. Third series from June 1 to 15. Principal competition—Orchids and Pelargoniums in flower. Supplemental—hothouse plants of any kind; ornamental-leaved plants, Caladium bulbosum, and every description of half-hardy plants; also hardy herbaceous plants of any kind, and shrubs such as Rhododendrons, Azaleas, Kalonias, Roses, &c.; cut Roses, new plants. Vegetables and forced fruits. Fourth series from June 16 to 30. Principal competition—Roses, Palms, Cycads, and Screw Pines. Supplemental—large-flowered Pelargoniums; hothouse plants such as Orchids, Theophrastias, Marantas, Begonias; intermediate-house plants, such as Orange trees, Verbenas, Calceolarias, Echeverias, New Holland plants; hardy annuals and perennials. Fifth series from July 1 to 15. Principal competition—Zonal Pelargoniums and Gloxinias. Supplemental—useful and Official hothouse plants, such as Orchids, Nepenthes, Caladiums; intermediate house plants, such as tuberous-rooted Begonias, Petunias, Amaryllises; hardy plants, such as Hollyhocks. Fruit and vegetables. Sixth Series, from July 16 to 21. Principal competition—hothouse plants. Supplemental—Gloxinias; intermediate-house plant, such as Lantanas, Petunias; hardy herbaceous plants, such as Pinks, Phloxes, Pentstemons, Cannas, Gladioli, hard-wooded ornamental plants. Fruit and vegetables. Seventh Series, from August 1 to 15. Principal competition—Fuchsias, Gladioli, Hollyhocks. Supplemental—climbing exotic plants; intermediate plants, such as Cape Heath, &c.; hardy plants, such as Dahlias, Lilies, Zinnias, Lobelias, Nasturtiums, Hydrangeas. Fruit and vegetables. Eighth Series, from August 16 to 31. Principal competition—Aroids and arborescent Ferns. Supplemental competition—hothouse plants, such as Orchids, Gesneras, Achimenes; intermediate-house plants, such as Fuchsias, Erythrina, Pelargoniums, &c.; hardy perennial plants, such as Dahlias, Hollyhocks, Pentstemons, Phloxes, Pinks; annuals, such as Balsams, Zinnias; aquatic plants, exotic and native. Fruit and vegetables. Ninth series from September 1 to 15. Principal competition—Dahlias and China Asters. Supplemental—Hothouse plants such as Crotons, Allamandas; intermediate-house plants such as Veronicas, Zonal Pelargoniums; hardy plants such as Tea and other cut Roses; deciduous trees and shrubs. Fruit and vegetables. Tenth series from September 16 to 30. Principal competition—Aralias and Dracaenas. Supplemental—Hothouse plants such as Solanums, Ficuses, Musas, Coleuses; intermediate-house plants such as Fuchsias, Zonal Pelargoniums; hardy plants such as Chrysanthemums, Bamboos; annuals of any kind. Fruit and vegetables. Eleventh series from October 1 to 15. Principal competition—Fruits of all kinds. Supplemental—Hothouse plants; new plants; tender and hardy Orchids, Chrysanthemums. Vegetables. Twelfth series from October 16 to 31. Principal competition—Every kind of vegetable. Supplemental—Ornamental trees and shrubs, both deciduous and evergreen; examples of different methods of propagation; Chrysanthemums and plants of all kinds. Special competitions from May to October—Lawns and Grass plots; groups of trees and shrubs; trellis-work, arches, &c.; and bouquets. For schedules containing full particulars apply to the Commissary-General, by whom the details of each competition are arranged.

NOTES AND QUESTIONS—VARIOUS.

Lonicera fragrantissima in Yorkshire.—This Honeysuckle blooms most profusely every year on a cottage here, and is much prized for its delicious scent. It has not been so early in bloom as it was this year for these last five winters; we picked the earliest sprays the first week in January.—H. J. C., *Tudcaster.*

Echeveria secunda glauca Wintered in a Fruit Room.—Having filled a five light pit with the number of plants which I thought I should require for this next season's planting, I had still 6000 left that I did not feel disposed to throw away, and having an Apple room nearly empty, I had them taken there and spread out thinly on the shelves. When looking over them a few days ago, I found them in the best state of preservation possible, more so than those planted in the pit: abundance of light and air was admitted to the room at all times.—R. NISBET, *Ascarby.*

New Potatoes in Succession.—In THE GARDEN of May 6, 1876 (p. 129) was recorded a method of growing successions of new Potatoes in frames on a bed of dead leaves in 1 ft. of light soil. I followed the directions exactly, and planted the Potatoes on October 17. Every one grew and flourished well till January 29, when the leaves drooped, and in a week all that remained was dying stalks, quite rotten at their base and found to contain (on being split open) small white worms like tiny pieces of thread. I was much disappointed and would be greatly obliged by any information on the subject. Has any one else tried the plan?—J. J.

The Double Poinsettia.—I agree with Mr. Fish that over-propagation has weakened this remarkable plant. I have had two in flower for some time, and their heads of showy bracts certainly last longer than those of the single *P. pulcherrima*; nevertheless I cannot say that they last in beauty double the time, because they do not. Moreover, I do not see that the colouring is any more vivid than that of the old variety; and lastly, to have Poinsettias in flower from November to May is surely one of Mr. Fish's flights of imagination. All new plants and new fruits should be criticised fairly. In this case Mr. Fish has over-shot the mark.—R. GILBERT, *Burghley, Stamford.*

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

WILD FLOWERS ABOUT ROME.

THE interesting article contributed to your columns by Mr. Armitage has recalled very vividly to my memory the pleasantest winter of my life which I spent in Rome eleven years ago, and of which my garden still contains many a bright reminiscence. As I look out of my window and see the yellow stars of the *Calendula arvensis*, I am carried back in spirit to the floral fights and fair faces and battery of bouquets which made the Corso so attractive in the Carnival week; and when the little pink stars of the lovely *Erodium romanum* begin to open, I fancy myself driven out along the Appian Way to a meet of the Roman foxhounds at the tomb of *Cæcilia Metella*. *A propos* of this same tomb, in its immediate vicinity, the Grass of the Campagna is thickly studded with one of the prettiest of the Roman flowers, *Ornithogalum tennifolium*. Its almost stalkless umbels of large, pure white flowers look like a shower of silver stars among the Grass. It has made itself quite at home in my garden here, and increases largely both by bulb and seed. I do not know whether the Vandalism of civilization has entirely denuded the Coliseum of its flora, but when I was there the delicate little *Asphodelus fistulosus* opened its rose-tinted flowers in plenty at the very top of the ruins. It completely loses this rosy tint when grown in our colder and less sunny clime. One of the earliest and prettiest of the Roman flowers is *Crocus biflorus argenteus*. The first time I saw it was on a bright sunny morning in January, when, in company with most of the English then in Rome, I was attending the funeral of poor Gibson the sculptor; its very sweet, white flowers striped with purple on the outside were enameling the graves in every direction. In the high meadows on the right bank of the Tiber, about two miles from the city, the Grass is full of the purple and yellow *Crocus*-like flowers of *Trichonema Bulbocodium* and *T. Columnæ*, and lower down, nearer the river, and also in the grounds of the Villa Doria there are quantities of the greenish-white spikes of *Scilla romana*. In the Villa Doria, too, I well remember the delight with which I gathered the curious, velvety-black and green *Iris tuberosa*, the early and pretty *Orchis aranifera*, and the lovely yellow and red bells of *Cerintho aspera*. In the meadows which skirt the road to Ostia, a few miles out of Rome, *Narcissus Tazetta* is abundant, and I shall never forget the fine wood leading down to the sea at Castel Fusano, with its carpet of *Cyclamen hederifolium* and bushes of *Erica arborea*, and a sweet-smelling pink *Daphne*, I think *D. Fioniana*. The large white sweet-scented umbels of *Allium neapolitanum* are the ornament of the shrubberies at the back of the Pincian, and the blue spikes of *Muscari comosum* and *M. racemosum* are found more or less all over the Campagna. At Genzano I found the beautiful dark blue *Scilla bifolia*, and at Hadrian Villa the pure white variety of *Anemone apennina* was not uncommon. At Ariccia, the banks at the side of the road were covered with a lovely bright blue *Pulmonaria*, which I have never seen anywhere else, and the name of which I do not know; it is so beautiful that I wonder it has never been introduced to English gardens. There was, too, a very dwarf *Senecio*, with large golden-yellow flowers growing plentifully in the bogs of the sulphur springs between Rome and Tivoli, which I admired much, but could not make out. I thank Mr. Armitage much for recalling so many pleasant reminiscences to my mind, and if the accompanying supplement to his list of wild flowers about Rome proves of any interest to him or your readers, I shall be much pleased. *A propos* of the Roman *Crocus*, *C. pusillus* and *C. suaveolens* both grow in the immediate vicinity of the city, and there is a lovely unstriped variety of the former species, which is one of the most delicate flowers I know.

H. HARPUR CREWE.

Drayton Beauchamp Rectory, Tring.

CLEMATIS INDIVISA FLOWERING IN DEVONSHIRE.—Mr. Luscombe sends us from Combe Royal, near Kingsbridge, South Devon, fine flowering specimens of this distinct and very free-flowering Clematis, which is now in bloom in his garden in the open air—the leathery, glossy, dark evergreen leaves being almost as handsome as the flowers. We have several times mentioned the extraordinary merit of this Clematis as a climber in the cool greenhouse at this season, but did not know it was hardy. It may be found useful as a wall plant in less favoured gardens than Combe Royal. It would also, probably, be worth trying in sheltered spots among shrubs. It has no resemblance to the new races of Clematis, or to any other species in cultivation. It is in its native country (New Zealand) a rampant-growing woody climber, festooning trees on the outskirts of woods.

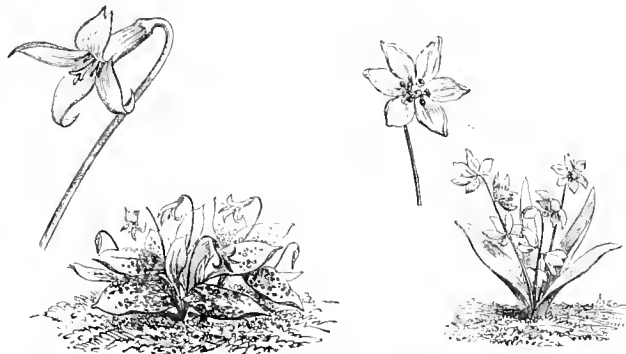
HARDY FLOWERS IN LONDON GARDENS.

SPRING-FLOWERING plants are now very attractive, and notwithstanding the unusual quantity of rain that has lately fallen upon them, they appear to last in good condition, even longer this season than when the winters have been drier. In the Wellington Nursery the Grape Hyacinth (*Muscari racemosum*) is throwing up flower-stems in abundance, and the Pileworts (*Ficaria ranunculoides* and *alba*) are also flowering freely. The pale blue blossoms of *Hepatica angulosa* are being produced in great numbers on well-established plants, and Christmas Roses of different kinds are still very attractive, especially



Broad-leaved Saxifraga (*Saxifraga crassifolia*.)

Helleborus colehicus; this, growing on raised beds at Henderson's, is profusely furnished with deep purple, drooping flowers that even in a cut state last in good condition for a long time. The white, Orange-flower-like *Saxifraga Burseriana* may now be found in blossom; the great Strap-leaved Saxifrage (*S. ligulata*) and *S. crassifolia* are also furnishing quantities of large trusses of white and rosy-coloured blooms in Barr's grounds at Tooting, where may also be seen the Prussian blue and velvety-tipped flowers of *Iris persica* and other kinds of *Iris*. Large beds of Squills (*Scilla biflora*) are also one mass of blue blossoms, and the Golden Plover Primrose and *Hepaticas* of various kinds are equally effective. In Ware's Nursery at Tottenham Dog's Tooth Violets are rapidly opening their blossoms, and associated with them are large beds of the Spring Meadow Saffron (*Bulbocodium vernum*), quite a blaze of bright lilac-purple *Crocus*-like flowers. The spring Starworts (*Triteleia uniflora* and *lilacea*) are now worthy of especial notice, thousands of white and lilac-coloured blossoms being borne above dense masses of healthy green foliage; these *Triteleias* can scarcely be too extensively planted wherever well-drained



Dog's Tooth Violet (*Dodecatheon dens-canis*.) Siberian Squill (*Scilla sibirica*.)

borders are available; this year they commenced blooming in the Tottenham nurseries early in December, and they have ever since been a mass of bloom, a condition in which they will apparently continue for many weeks to come. *Crocuses* of various colours are now in brilliant condition in gardens round London; *C. pusillus*, one of the most interesting among them, is flowering freely at Ware's. Perhaps few hardy plants are more remarkably just now than the dwarf-growing Heaths (*Erica mediterranea alba* and *E. herbacea rubra*), established plants of which are used as edgings for large beds and quarters in the Tooting nurseries, and are just now covered with slender stems densely beset with pink and creamy-white blossoms. To these may be added Primroses of many colours, and the White Hoop Petticoat Daffodil (*Narcissus monophyllus*). At Kew *Anemone pavonia* is bearing numerous rich scarlet, Poppy-like blossoms, which are strikingly effective. S.

NOTES OF THE WEEK.

A VALUABLE EVERGREEN HERBACEOUS PLANT.—We notice by the Long Walk in Kensington Gardens a tuft of the rich green and handsome leaves of the large *Acanthus latifolius* in perfectly fresh condition. Probably the mild season has preserved it so well in a London garden; but it is hardy enough to prove a valuable ornament even in winter, in sheltered, warm gardens. Of its merit as a window plant in winter we have already spoken.

THE SWEET LIME AT COMBE ROYAL.—I have a plant of this growing on a wall here, protected only by a Reed frame in winter; it bears abundantly, and is a really good dessert fruit if gathered in a proper state. It is about the size of the Kumquat, but round and otherwise different from that pretty little Japanese Orange.—**JOHN LUSCOMBE, Combe Royal, South Devon.**

AGAVE ELEMEBIANA IN FLOWER.—In the Cactus-house at Kew a large specimen of this American Aloe is now bearing a spike of bloom from 15 ft. to 20 ft. in height, an altitude which it will in all probability greatly exceed by the time it has completed its growth. The stem at the base is as thick as a man's arm, and being densely covered with erect, greenish-yellow flowers, forms an object at once interesting and striking.—**S. C.**

APPLES AND OTHER FRUIT TREES & ALMONDS.—Almond trees are now everywhere in flower near London, and very beautiful they are, but might they not be profitably supplanted by, or at least associated with, good Apple, Pear, or Plum trees, all of which would, when in bloom, be little inferior in beauty to the Almond, and they would, in addition, yield a crop of useful fruit?—**S.**

NEW SEEDLING VIOLET.—Mr. Lee, of Clevedon, sends us flowers of a seedling Violet, somewhat similar in appearance to *V. canina*, but richer in colour and deliciously fragrant, the individual blossoms being as large as those of *Victoria Regina*, and of good substance. Apart from its beauty and novelty as regards colour, this variety is interesting as being a step nearer the acquisition of a really blue Violet than any we have yet had, and which would in many respects be an acquisition.—**B.**

ORCHIDS AT CHOLMELY PARK, HIGHGATE.—Mr. Michael's collection at Cholmely Park is just now very attractive, *Odontoglossums* and *Dendrobiums* being remarkably floriferous, as are also the different species of *Phalenopsis*, to which a small house is especially devoted. Of *P. Schilleriana* many distinct varieties are displaying their graceful wreaths of lilac-tinted, butterfly-like flowers along with those of *P. amabilis* and *P. grandiflora*. A plant of the rich golden-blossomed *Dendrobium Cambridgeanum* bears three very large flowers.—**B.**

KENSINGTON GARDENS.—It is satisfactory to observe that the labelling of the trees and shrubs in the plantations of these gardens is being gradually extended. Many interesting species have been long overlooked in consequence of the absence of a label, and though exception may fairly be taken to the needlessly large and staring description of the labels in use in our London parks, it is better to have them than none at all. It is to be hoped that this really useful work will be still further carried out.—**R. C.**

AGAPANTHUS MINOR.—This miniature form of the African Lily is now flowering in pots at Kew; the blooms resemble those of *A. umbellatus*, but they are smaller, and the golden-tipped anthers are arranged more closely together. Being of a dwarfier habit than that of *A. umbellatus*, and flowering, as it does, at this season of the year, this small African Lily promises to become popular.—**S.**

KENNEDY MARRIATHIANA.—This old-fashioned greenhouse climber is now flowering freely in Messrs. Osborn's Nursery at Fulham. It produces long pendent stems clothed with trilobed, woolly leaves. The flowers, which are Pea-shaped, are of a soft orange-scarlet colour, and are borne singly in the axils of the leaves. Though an old plant it well deserves a place in every greenhouse, on account of its continuous flowering habit.—**J. G.**

THE BRISBANE LILY (Eurycles australasica).—Quantities of this plant, to which we lately directed attention, are now finely in bloom in the Chelsea Nursery. When better known it will doubtless be extensively cultivated, for in addition to the beauty of its flowers, they continue in perfection on the plant in an ordinary sitting-room for several weeks together; for bouquet-making, too, its snowy blossoms will be found useful.

FRUIT CROPS IN WORCESTERSHIRE.—Judging from present appearances fruit trees of all kinds promise to be abundantly furnished with bloom this season. Apricots, as yet, are only partially in flower. Peaches and Nectarines, recently nailed, are bearing a fine crop of blossom buds, which will not, however, be open for a fortnight yet; and Apple and Pear orchards everywhere, when in flower,

will be a sight worth seeing. The present cold weather will have the effect of retarding flowering, and will therefore act beneficially on fruit trees generally, which, on warm soils, consequently upon the extreme mildness of the winter, are somewhat more forward than is desirable.—**W. COX, Madresfield Court.**

THE "ROCKWORK" NEAR THE SERPENTINE.—We are pleased to notice that some of the malformed bricks, clinkers, &c., which, under the name of "rockwork" covered the ground at the end of the Serpentine, are being removed. Better no "rockwork" than mean paucity; a rock garden is not a leprosy of rubbish spread over the reluctant earth in a garden.

RHOODENDRON TAYLORI.—Plants of this new *Rhododendron* in Messrs. Veitch's Nursery at Chelsea are now bearing large trusses of delicate, rosy-pink, tubular blossoms. For early forcing and furnishing cut bloom during the winter months, this plant, when better known, will doubtless be highly appreciated, owing to its being of good habit and a profuse bloomer; it will also be found valuable for conservatory decoration.—**S.**

ONCIDIUM VARICOSUM.—Large specimens of this Orchid are now in bloom in the Exotic Nursery, Chelsea. Their long, branching flower-spikes, which are abundantly produced, are thickly studded with blossoms of the brightest golden-yellow. This, though not so showy as its variety *Rogersi*, is nevertheless a useful plant, and when seen in such fine condition as the plants in question, strikingly effective.

EARLY OUT-DOOR ASPARAGUS.—Perhaps some of your readers may be interested in hearing that on the 15th of this month, at the residence of my mother, the Dowager Lady Williams, at Tregullow, near here, a fine dish of Asparagus was cut, grown in the open air, without any forcing, and from an old bed. The garden lies on very high ground, and is exposed to north and east winds. The circumstance struck me as being of such rare occurrence, and such a proof of the mildness of the season, as to warrant my furnishing the information.—**FRED. M. WILLIAMS, Gooonrea, Perranarworthal, Cornwall.**

"THE WILD GARDEN."—It is intended to fully illustrate in the best manner the next edition of this book. The author will be grateful to any one who may favour him with photographs or sketches showing aspects of vegetation in wild gardens which have already been successfully established in various places. The author's intention is to collect materials for the illustration of the work during the present year, and at its close to place them in the hands of the best artists with a view to their reproduction.

THE SILVERY ACACIA FLOWERING IN ENGLAND IN FEBRUARY.—Mrs. Col. Wright sends us from Watcombe Park, Torquay, specimens of the beautiful *Acacia dealbata*, now in flower in the gardens there, and concerning which she writes as follows:—"The tree is flowering out-of-doors here; it is about 25 ft. high, and appears to have been planted many years in a sheltered position. I thought it might be interesting to readers of *THE GARDEN* to show that we have a fairly warm climate in this part of England. The May is also out in flower in several parts of the plantations, but for this the warm season we have had may partly account." We have seen this *Acacia* flowering beautifully at Caserta in March, but did not think it would attain such fair proportions and bloom so well with us in the open air in England.

LACHENALIA TRICOLOR.—A well-grown and distinct variety of this plant is now flowering profusely in the Rev. A. Rawson's garden at Bromley Common. Its blossoms are chiefly yellow, but the sepals are suffused with vermilion at the base and tipped with green, the petals being half as long again as the sepals, and tinted with rose on their greenish margins. It forms an effective little plant well suited for greenhouse decoration. The leaves, which are comparatively large and vigorous, are faintly spotted.—**B.**

AMOUNT OF MAIDEN-HAIR FERN USED IN BOUQUETS.—Some idea of the extent to which Maiden-hair Fern is used in Covent Garden for bouquet-making may be gleaned from the fact that Mr. Rochford, of Tottenham, has several large, span-roofed houses entirely devoted to its culture for furnishing fronds in a cut state. The plants are grown in 12-in. pots, and in order to keep up a regular succession, only a portion of them is cut at a time, those which furnish such fronds being subjected to a lower temperature than the rest, by which means the fronds assume a deeper green colour, and last longer after being cut than they otherwise would do.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The thirty-fourth anniversary festival of this Institution will take place on Wednesday, the 4th July next, the day of the great Rose Show, and Sir Trevor Lawrence, Bart., M.P., has kindly consented to preside on the occasion.

THE SWEET SOPS AND CUSTARD APPLES.

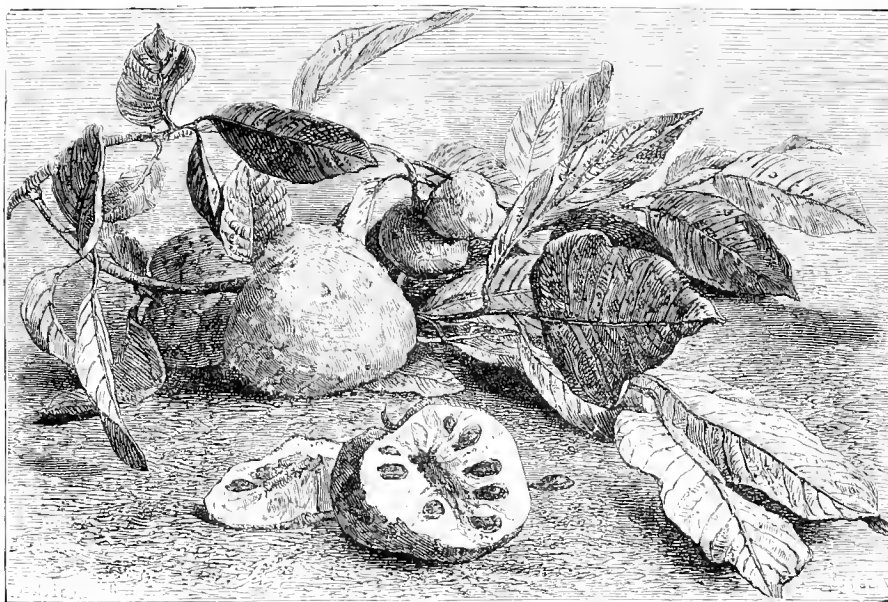
THE Anonas are remarkably handsome fruit trees, natives of South America and the West Indian Islands; but several species are cultivated pretty generally in all tropical countries for their large pulpy fruits, and of late years small consignments of those of *Anona reticulata* or Custard Apple have appeared in Covent Garden Market. There seems, however, to be no regular trade in them; for, like Mangoes, they are only seen now and then. I have tasted these fruits, which are as large as a good-sized Apple; but they have rather hard reticulated or scaly coats, the seeds being embedded in the sweet, yellowish-white pulp inside. The Sweet Sop is the fruit of *A. squamosa*, a native of the Malayan Islands, but extensively grown throughout the East and West Indies. The fruit of this plant is ovate and covered with projecting scales; the rind, which is thick, encloses a luscious pulp, concerning which tastes differ; it appears to be highly esteemed by the Creoles, while Europeans think lightly of it. The fruit grown in the Ludian Archipelago is said to possess a finer flavour than that produced in the West Indies. The leaves of this plant have a very disagreeable odour, and the seeds, according to Royle, contain an acrid principle fatal to insects, on which account they are used in a bruised state as an insecticide. Another species — *A. Cherimolia* — the Cherimoyer fruit of the Peruvians, is nearly allied to the preceding, the fruit being heart-shaped and scaly; this is considered by the Creoles to be one of the most delicious of all fruits, a verdict which Europeans do not confirm. In addition to their fruits, however, the plants of this genus are remarkable for their fragrant foliage and aromatic qualities. The soft compressible wood of *A. palustris* is employed in Jamaica as a substitute for cork; the fruit is called the Alligator Apple, but is narcotic and inedible. The Sour Sop of the West Indies is the fruit of *A. muricata*, and is of considerable size, often weighing as much as 2 lb. It is greenish in colour, the outside being covered with prickles; the pulp is white, and has an agreeable sub-acid taste. The annexed illustration is a reduced representation of a fruiting branch of the common Custard Apple, together with a sectional view of the fruit, showing the dark seeds embedded in the white pulp. The North American Custard Apples are varieties of *Asimina* (*Anona*) *triloba*, and are quite hardy in this country, forming slow-growing deciduous shrubs, and bearing large, brown, leathery-looking flowers. A figure of a flowering branch of *A. triloba* was given in THE GARDEN, Vol. X., 1876, p. 9. We find no records of any of the edible Custard Apples having fruited in this country; perhaps the large size to which the trees attain may preclude, to some extent, the possibility of this occurring very generally; still, as aromatic stove fine-foliaged shrubs, they might prove worthy of a place in collections. A compost of fibrous loam, leaf-mould, and sandstone grit, on a well-drained bottom, suits them admirably, and a copious supply of water at the root is essential.

B. W.

HERBACEOUS PHLOXES.

OF these there are two distinct types in cultivation, viz., the shrubby, and the decussata sections, consisting chiefly of garden hybrids, the latter possessing a more robust growth, and being rather later in flowering than the others. The varieties grouped in the shrubby section are largely cultivated in Scotland as well as in the moister districts of the north of England; but around London, and generally in the warmer and drier south, they do not succeed. This distinction is not sufficiently kept in view by catalogue makers, and therefore failure has not unfrequently been the result, through purchasers having got the suffruticose kinds. On the other hand, the varieties of decussata are largely grown in the south, and they have come to be regarded as valuable plants, not only for the embellishment of open borders, but also for cultivation in pots for exhibition and for decorative purposes. The varieties in both sections are readily increased by division in spring, and by means of cuttings made of the young growth produced from the base of the flowering stems during summer, and especially in July and August. These cuttings soon strike root when placed in light sandy soil in pots, and then transferred to a cold frame, or set on the shady side of a cool-house, and covered with a hand-glass. As soon as rooted, the plants require to be placed in 60-sized pots, using a soil consisting of light loam, sand, and plenty of leaf-mould, and they should then be wintered in a cold frame.

These Phloxes are perfectly hardy; but in times of severe frost it would be wise to cover the frame with mats or some such protecting material; treated in this manner strong, well-rooted plants will be ready for planting out in summer. There is nothing like a bed of Phloxes for showing off the different varieties to the best advantage; but they may also be effectively dotted about a mixed border, where the soil is good. They like a deep, rich, strong loam, in which the panicles of bloom come much finer than when the plants are growing in a light, dry

The Sweet Sop, or Custard Apple (*Anona squamosa*).

soil. The soil should be deeply dug and manured during winter, and then thrown up rough for a time to get well pulverised. Phloxes throw out dense masses of rootlets, and, unless these have abundant material on which to feed, the heads of bloom will be sure to be disappointing. Moisture at the roots is also indispensable, and this is an additional reason for using a good holding loam in the bed to be filled with such plants. As soon as the shoots reach the height of from 12 in. to 18 in., they should be tied to stakes to prevent them from being injured by wind. When the flower-buds begin to open, a mulching of manure will be found of great value, and occasional waterings with manure-water will also be of service. In the southern districts, and, in fact, in the majority of cases in northern localities, Phloxes may be wintered in the open ground with little risk of injury; but it is always best to protect in some way the choicer varieties. It is not often that Phloxes are grown in pots, but as it is now customary to offer prizes for cut Phloxes at summer flower shows, there is no reason why encouragement should not be given to plants so grown, the mode of cultivation being simple enough. The strongest of the newly-struck cuttings should be selected for the purpose; early in spring they should be shifted from the 60-sized pots in which they were wintered to 48-sized or 32-sized, according to the dimensions of the plants. The blooming-pots require to be from 10 in. to 12 in. in diameter, and the next shift should be into these, and as soon as they are re-potted they should be plunged up to their rims in ashes, tan, or in

any suitable material, in a shady position, and on no account should they be allowed to suffer from want of water, or they would in all probability lose their leaves. When the plants come into bloom they should be removed to the conservatory and mulched with manure, after the manner of orchard-house trees, and watered with liquid manure. They will then remain in flower for a considerable time. When they have done blooming they should be set out-of-doors to ripen their growth, after which they should be cut down, and the pots again plunged in ashes in the open ground. When severe weather sets in, a little litter should be shaken over the pots to keep the plants from harm. Here they may remain till spring, and when starting into growth they should be turned out of their pots, the roots trimmed, and then placed in smaller pots, and as soon as these are filled with roots they should be transferred to their blooming-pots; after the second year fresh plants should be used, grown up from cuttings as has just been recommended.

New varieties of tall Phloxes are obtained from seed, but so much difficulty has been experienced in getting it to germinate that many are deterred from attempting to raise seedlings. Frequent failures have occurred from efforts having been made to raise seed in heat; as soon as possible after being gathered it should be sown in a shallow pan or box placed in a cold frame and kept moist. Some of the seed grains will germinate quicker than the others, and therefore the crop will appear successional. As soon as the plants are large enough to handle, they should be pricked off into other boxes for a time, and then they should be planted out in spring. The following list comprises a few varieties of undoubted merit, viz.:—A. F. Barron, amabilis, Comte de Lambertye, Dr. Masters, coccinea, Fairy of the Rhine, L'Avenir, Le Lion, Madame Damesnil, Madame Damage, Mrs. Laing, Madame Caillard, Liervalli (a pretty striped variety), Mons. Malet, Lothair, Professor Koch, Queen of Whites, and Sœur de Trionon. Any nurseryman could supply a selection that could hardly fail to give satisfaction. D.

ORCHID CULTURE IN AMERICA.

I NOTICED a few remarks on this subject in a recent number of THE GARDEN (see p. 601, Vol. X.); I therefore thought that an account of my experience of Orchid culture in New Jersey might not be without interest. In the article to which I allude mention is made of the very different climate in this country from that of England, but it requires a resident of several years to discover how very variable it is. Your correspondent mentioned the long continuance of hot dry weather which we had last summer; that, however, is of rare occurrence without a hot rain-storm, during which the air is saturated with moisture, like the rainy season in the tropics. I would not give much for Orchids plunged in Moss and saturated with water after a week of such weather, and as it usually begins with a violent thunder-storm after a very drying day, the plants would probably be quite full of moisture when it commenced, and the Moss would decay in a day or two; for fire-heat is seldom used from the end of May until October, the sun gleaming out at intervals with tropical heat, and even without this the temperature day and night is over 70°. This is the most difficult time for young growths, and even old pseudo-bulbs will decay in a few hours. The summer before last closely resembled an English summer, being scarcely hot enough to ripen Melons and bring the Egg-plant to maturity in the open air; I kept just sufficient fire to warm the pipes in the Orchid-house every night, and by so doing found my plants much benefited. In the winter we have so much bright sun and dry winds that it is necessary to keep more moisture in the atmosphere, and also to water the plants much oftener than is the case in England; now this continual watering decays the potting material, causing many plants to require fresh potting and shaking out oftener than in that country. Another trouble is the frequent intense cold, which in hothouses condenses the moisture into a thick coat of ice inside the glass, which on melting drops on the plants and spots the foliage. Certainly this disaster can be prevented by double glass, and the house being made warmer with less fire, and also cooler in the summer, but the objection to double glass is that the snow does not melt fast enough and has to be removed, or the house is in partial darkness for a number of days, the removal of the snow not being convenient, or it is frozen quite hard to the wood; some kind of covering might be suggested, but I do not know of anything for the purpose which could be used and easily removed, besides the difficulty of securing it against strong gales, the thermometer, meanwhile, being at zero.

Of course it is necessary to employ thick shades in the summer both to break the sun's rays and also to reduce the temperature; at the same time more ventilation should be given at night than during the day, for it is often several degrees cooler in a shaded house than the outside. We find such plants as *Peristeria* and *Schomburgkia*, which are shy bloomers in England, flower abundantly here, the

former producing strong stems and from thirty to fifty flowers on a stem; *Dendrobiums* also grow and flower freely; while *Cattleyas* flower readily, and would seed plentifully if allowed, but the fine green colour seen in the best English collections is difficult to attain. *Cypripediums* succeed well, the old *C. insigne* being the most useful, flowering profusely, and lasting for months in the winter; we frequently have dozens with two flowers on a stem: it is in much request for cut flowers. *C. Roezli* is another species which is in flower all the year; we have a plant with eleven flower-stems, some of them branched; even if the flowers were not so attractive, the plant is worth growing solely for its fine bright green foliage. *Laelia autumnalis*, *Cattleya citrina*, *Oncidium filipes*, *Odontoglossum Cervantesi*, and *O. Ehrenbergi* thrive well in the Camellia-house, which is kept from 40° to 45° fire-heat; these are all grown on blocks. *Laelia anceps* also succeeds in the same house, but requires a little more heat in the winter to bring the flowers well out. *Disa grandiflora* is quite a success in this house throughout the year: there is a plant here with eight spikes carrying fifty-four flowers, and some of the flowering stems were 3 in. round. Such plants generally last in flower over two months. In the great heat of last summer, I grew these out-of-doors in the summer in a moist shady place, but it was impossible to keep them free from thrips, which came from the wild plants in the neighbourhood. *Odontoglossums* do moderately well, the hot weather being a great drawback to their full development, while the miserable little plants sent from Europe do not permit of their showing to the best advantage: if good showy masses be carefully treated, they grow and flower well. The East Indian species generally prosper, although *Phalaenopsids* do not grow so freely as in Europe; these probably would succeed better in a north hothouse, as we find it necessary to grow both *Coelogyne cristata* and *Lycaste Skinneri* in a north house during summer. *Zygopetalums* are very useful for winter; there is usually a plant or two of these to be found in most private establishments; among them are many superior varieties. I may add that there are but few general collections of Orchids in this country, but there is a growing taste for these lovely plants, hundreds of people with a small house or two growing a few plants, and if successful, often devoting a small house to the purpose; but few have yet arrived at the stage of paying ten guineas for a rare *Cattleya* when they can get a good *C. Mossii* for one.

JAMES TAPLIN.

South Amboy, New Jersey, U.S.A.

Hepaticas from Seed.—These are plants that will repay the trouble of raising them from seed, as thereby a great variety of colour is gained, and we shall soon find multiplied the terrific names given in catalogues to these first glances of the spring. The seed does not germinate till the following spring, but it should be sown when ripe. I have now several pans full of seedlings, which will not bloom till next year though they were sown in April 1875; for all that I shall be well repaid, as the flowers were carefully hybridized, and the pans have required little attention after sowing the seed. Turfy loam mixed about half-and-half with Cocoa-nut fibre is the best compost for sowing all such seed as will have to remain a long time in the pans: this compost does not become sour or consolidated.—FRANK MILES, Bingham.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Weigela rosea Forced.—Plants of this well furnished with flower-buds, potted in autumn, and brought on gradually in the progressive temperature of early forcing-houses, are now lovely objects either for furnishing conservatory beds or in a cut state; their delicate tints associate well with almost any kind of flowers in general floral decorations.—J. G.

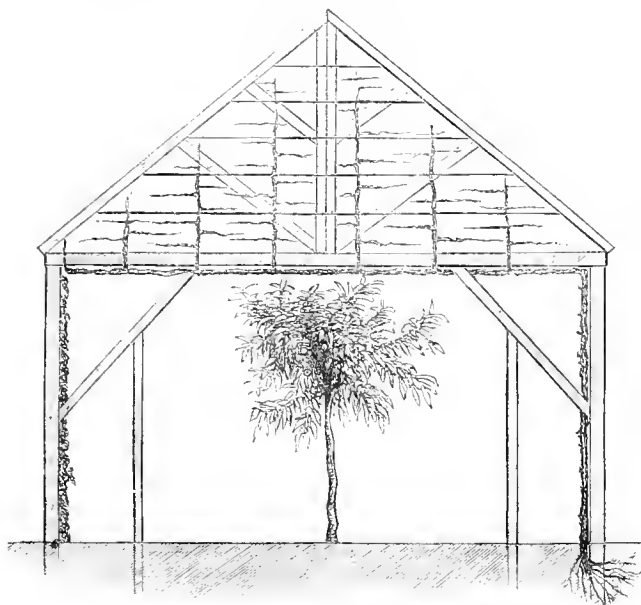
Stigmaphyllon ciliatum.—This should be in every stove, however small, inasmuch as throughout the summer and autumn months its beautiful Orchid-like flowers may be had in abundance. They are produced in clusters of from four to five on a strong stalk, which adds to their value in a cut state. Its foliage, too, is very handsome, being beautifully fringed with rich crimson-coloured hairs. It is, in short, one of the few stove climbers that succeed really well when confined to pot culture, and, as such, is well deserving of attention.—J. TAYLOR, *Horticulturist's Magazine*.

The Double Poinsettia.—I quite agree with Mr. Fish's remarks respecting this plant, the constitution of which I ruined in my case through over-anxiety to increase my stock. Consequently it has made but a poor display; still I have every confidence that it will in time give entire satisfaction; and I would even go a step further than Mr. Fish, and say, that we shall have this *Poinsettia* in bloom all the year round. Its heads of inflorescence here are in finer condition now than they were three months ago, and they certainly have more depth of colour than those of the single variety.—RICHARD NISBET, *Asbury Park*.

Triteleia uniflora and Hepaticas under Glass.—How few know the value of *Triteleia uniflora* for forcing! It is only necessary to bring it into the greenhouse whenever it is wanted, and in a short time it will be in full flower. All the garden Hepaticas open their blooms with the same rapidity if suddenly brought into a warmer temperature. The lilac variety of *Triteleia uniflora* is a grand plant for a warm border or raised rockwork.—FRANK MILES, Bingham.

A SUBURBAN MARKET GARDEN.

CONSIDERING the enormous quantities of fruit, such as Grapes, Peaches, Pines, &c., which are annually imported to this country from the Continent and America, it is wonderful how English growers can pay such heavy rents for their grounds as they do. That many who attempt to grow fruit and other produce for market fail, there can be no doubt, but in the majority of cases where the proprietor is well acquainted with his business, and in the possession of sufficient capital to permit his trees and plants to become established and in good bearing condition before he of necessity looks for returns, large profits are made by fruit culture in England. A very important point, especially in fruit growing, appears to be that of adapting certain crops to certain seasons, and growing that class of produce which is most likely to be sought after in the market, even should it have to be sold at a cheap rate. Economising and utilising all available spaces, both indoors and out, is also a matter that receives great attention in all well-conducted market gardens, and is probably the main secret of success. Perhaps in few places near London is this better exemplified than in the gardens of Mr. Yeldam, at Hammersmith, and unusually well is this system carried out indoors, all the fruit



Glazed Fruit Shed in Mr. Yeldam's Gardens at Hammersmith.

houses here being made to produce a crop of some kind during the season when the trees are at rest. There are in all about twenty houses, and they range in length from 100 ft. to 220 ft., and are wide in proportion. Vines form the principal indoor crop in this establishment, and these are well attended to, and look remarkably promising. In the earliest houses the fruit is just now setting, and it is expected to be fit for market at the end of May or early in June. The borders are all outside, well drained, heavily manured during the winter, and copiously watered during the summer. Most of the Vines here have been planted for several years, and are principally trained on the rod and spur system, and are allowed several canes each. A large house, however, is devoted to what Mr. Yeldam terms the long-rod system, which consists in training up young rods from the bottom each year, and removing them as soon as they have borne fruit. By this method a crop of large bunches of Grapes is almost a certainty, but they do not always colour so well as those produced on older canes. Black Hamburgh is the kind grown, and this variety serves both for early and late work. Very large bunches and berries are not sought after, and, therefore, the berries are left much more thickly than would otherwise be the case were large berries desired. The bunches weigh heavier when not thinned too much, and a greater number can be obtained from each Vine. Grapes of this description find a more ready sale than those which are brought

to the highest state of perfection, and although they are, of course, sold at a cheaper rate, they are in the end the most profitable.

The principal late Vinery is a span-roofed one about 220 ft. long, with a glass front and brick wall at the back; a pathway runs inside along the front, and at the back is a border from 12 ft. to 15 ft. wide, planted with Camellias, of which there are in this house thirty-five magnificent specimens, averaging from 12 ft. to 15 ft. high and as much through. All blooms that are sufficiently advanced are cut on each market morning, and, on some occasions, as many as 325 dozen blooms have been gathered at one time. Notwithstanding this, many of the plants are still bearing a fair average crop of unexpanded buds. In early Vineries the Camellia will not succeed, but in late houses they thrive admirably, the Vines affording them shade during the summer, and yet not obstructing the light from them during the winter when they are opening their blossoms. The old double white is the only variety grown in this house, but a few very good specimens of coloured kinds are to be found in other houses about the place. In other Vineries Spiræas, Callas, Dentzias, and immense quantities of Rhabarb are forced, but are removed before the Vines offer so much shade as to injure them. The Spiræas are grown on Mr. Yeldam's grounds in Kent, and are good examples of what can be accomplished in this country under liberal culture, inasmuch as they are flowering equally freely as ordinary imported crowns, which are by many considered indispensable for early forcing. The bulk of the Callas are in flower at Easter, at which time there is a large demand for them, and they invariably realize good prices. The Rhabarb roots are placed closely together in beds on the floors of the houses; a little leaf-mould is cast over them, and they are afterwards covered with mats, which remain on the plants until the stalks are pulled. Rhabarb forced in this way, though not possessing quite such a high colour as that which we usually see in the market early in the season, is much better flavoured, and is quickly purchased by those who study quality rather than appearance.

Strawberries form a very important indoor crop here, about 30,000 plants being forced yearly. The plants are layered in small 60-sized pots during the summer, and are afterwards shifted into 32-sized pots. They then remain out-of-doors until severe weather sets in, when they are moved indoors. This season, owing to the weather being so mild, they have only just been housed. The crowns are remarkably plump and strong, and have the appearance of producing large crops. They are now being cleared of dead leaves and arranged in beds on the floor of a large lean-to house from 12 ft. to 15 ft. from the glass. Here they remain until the fruit is gathered, shelves and similar contrivances being entirely dispensed with; the back wall of the house is covered with Peach trees, which are in excellent condition. Two other large houses are entirely devoted to Peaches, and the trees are now one mass of blossom. Barrington, Violette Hâtive and Royal George are the kinds grown, the latter succeeding unusually well, fruit from 8 oz. to 11 oz. in weight having been frequently gathered from it. Standard Peaches, too, are successfully grown under glass, the house they occupy having apparently at some time been a shed; a glass front and roof have, however, been fixed in it, the spars and rafters of the shed and the boarded back remaining as before. The upright posts which support the ends of the cross rafters are from 10 ft. to 12 ft. apart, and at the foot of each is planted a Vine, the main stem of which is trained along the cross rafter, and from this main rod issue at every 2 ft. or so other rods, which are trained in an upright position. By this means the Vines obstruct very little light from other subjects grown in the house, while they themselves have abundance of light and sun on every side. In the centre of the house and between these Vines are planted the standard Peach trees just alluded to; they are from 15 ft. to 20 ft. high, and nearly as much through, and the branches are just now loaded with blossom. The trees are never pruned, but are otherwise liberally treated, and never fail to produce heavy crops of good fruits. The house in question is 215 ft. in length and 25 ft. wide; the back boarded wall is covered with Gloire de Dijon Roses, one plant alone furnishing 150 ft. of the space;

A number of Camellias and several large specimens of Mock Oranges are growing in this house, the latter bearing yearly quantities of sweet-scented white blossoms, which are eagerly bought by bouquet makers. All available space on the floor and between the trees is covered with Rhubarb, and there is at present such a quantity fit to gather that one would think it could scarcely be disposed of at this time of the year; indeed, a more interesting and profitable house than this I have never seen. Last year 7300 bunches of highly coloured Grapes were cut from it, which would probably yield a remunerative return, even had the house been entirely devoted to them.

The out-door stock at this establishment consists of fifteen acres of fruit trees, comprising Apples, Pears, Plums, and bush fruits, the latter being grown in open spaces between the other trees. No more pruning is done to fruit trees here than is absolutely necessary. When the branches get too thick the most unhealthy of them are cut away, otherwise the pruning knife is never used; yet more beautiful specimens of Pear trees than can be seen here it would be difficult to find; the wood is clean, and thickly set with bloom-buds.

Crocuses are also extensively grown here; they are planted on raised beds in the open ground, and when they come into flower they are lifted in little clumps, their roots tied in Moss, and put into boxes for market. Common yellow, blue, and white are the kinds principally grown, and there is now upwards of half an acre of them in one mass of bloom, presenting a sight that can perhaps be better imagined than described.

C. W. SHAW.

Gooseberry Pruning v. Birds.—I observe (see p. 152) that Mr. Wynn advocates early pruning and protecting the trees from birds afterwards by means of soot and lime. This in a season like the present would, I fear, be a much more troublesome remedy than powder and shot, which not only protects Gooseberry trees, but others which suffer equally from their attacks. Mr. Wynn's remark that the powder and shot frequently do more harm than the birds, only proves that the best of remedies may be misapplied. Any one who shoots right into the heart of a fruit tree of any kind is not fit to be trusted with a gun. Birds invariably settle on standard trees before they attack bush fruits, which, therefore, need not be shot into. As regards the time for pruning, I by no means select March as a leisure period, but when success or failure in so important a crop is dependent on a little extra exertion at that time, I think it should be done even if some ordinary routine work be thereby delayed. Early pruning induces early growth as much in the case of the Gooseberry as in that of any other deciduous tree, and frequently if the retarding process can only be secured for a few days, the crop may escape a destructive spring frost as well as the ravages of birds, which not only injure the crop but the bushes as regards bearing wood for years. I make it a rule never to recommend anything until I am satisfied that it is of practical value, and in this case I would say give late pruning and powder and shot a fair trial, and if your crops prove as abundant as ours have been, the amount of useless wood cut away will be reduced to a minimum, as the trees have enough to do to perfect the crops and fruit-buds for the following season. Cutting away artful annual shoots is not desirable.—J. GROOM.

Vines for a New Vinery.—"Old Subscriber" (see p. 152) should not plant more than twelve Vines, which should be a yard apart; indeed, if it be intended to grow plants underneath the Vines, they should stand 3 ft. 6 in. asunder. This will give ample room for the foliage of the Vine and a fair share of light to the plants. If he can only afford 1 ft. for an outside border, it will be better to do without it, as it will merely act as a receptacle for water from the overflow of the spout, and other water that runs down the front, causing the soil to get sodden and sour, and doing more harm than good. As the Vinery is 12 ft. wide, make the border 6 ft. wide to begin with, and complete the remaining part in two instalments, as required. The Vines will do well without an outside border, provided that inside be kept in a healthy condition. It should never be allowed to become dust-dry, nor yet soured with water; four waterings during the growing season are sufficient—one when the Vinery is closed; a second just before the Vines come into bloom; a third, as soon as the fruit is fairly set, and a fourth when it commences the second swelling. Sufficient should be given each time to thoroughly wet the border through. As the Vines are intended to furnish a midseason crop, Black Hamburghs should form the principal part, the other being Buckland Sweetwater. Too many varieties always end in disappointment.—JAMES SMITH, *Waterdale*.

FLOWERS IN VASES OF GROWING IVY.

THE small-leaved wood or wild Ivy forms a good substitute for Ferns for associating with flowers in vases, a fact well pointed out by Mr. McNab in a former issue of THE GARDEN. It grows well in an ordinary sitting-room if it be carefully taken up from the Mossy banks or trees on which it grows, and its stem roots encouraged by being enveloped in living Sphagnum Moss moistened with water occasionally so as to keep it humid. I have tried this mode of growing Ivy in vases, and have now specimens of it which are fresh and healthy after having been three months in a warm room. It will be found to be excellent for draping Vases in which a few flowers, Grasses, or clusters of berries are introduced. The large-leaved Irish Ivy, or that from dry walls, trees, or rocks, is not so suitable for growing in the manner here indicated as the wild kind, for its rootlets, not being acclimatized, damp off when introduced into a moist medium; hence the small-leaved, wild Ivy, from a moist bank, or a ditch, or brookside, where it roots among Moss and fallen leaves, is in every way preferable. My plan is to select pieces from 1 ft. to 2 ft. in length, choosing those sprays only which have bunches of white rootlets at their lower ends; these I place in a vase, or indeed in any receptacle in which a handful or two of moist Sphagnum has been placed. The sprays are arranged as gracefully as possible over the vase, to which it is sometimes necessary even to tie them in their proper positions. I never have many flowers cut at any one time, but if in my rambles around the garden or elsewhere I meet with a pretty bud or blossom, a tuft of wild Grasses, hips, wild flowers, or clusters of berries, I place them as tastefully as I can into my Ivy-clad vases, and at the same time remove any faded blossoms which they may contain. In this way my vases are an ever-changing source of interest, and somewhat of an index or reminder of the flowers which may be found in bloom at any particular season. During winter and spring, when hardy flowers are scarce, we brighten up our growing Ivy by a few clusters of the scarlet-berried Gladwyn Iris or young, silvery Artichoke leaves, with now and then a Crocus bud, Violets, or a handful of Snowdrops, and perhaps a flower or two of Iris reticulata. The Sphagnum Moss does double duty, since it not only keeps a stratum of moisture-laden air around the roots of the Ivy, but it keeps the flowers in position better than water alone would; and we also fancy that the flowers themselves last longer in beauty than when placed in pure water, which may be because the moisture given off by the Moss counteracts the drying influence of the heated apartment. My experience is that full-sized buds of all bulbous plants are infinitely preferable for cutting to the fully expanded flowers, since they open just as well when their stalks are plunged into the growing Moss as when on the plants, and last in beauty much longer, owing to their being protected from winds and cold rains. The annexed engraving will perhaps give a better idea of our Ivy vase than any description possibly could do. It was sketched in December when the only other vegetation obtainable besides Ivy was a few flowers and buds of the Paris Daisy (*Chrysanthemum Lencanthemum*), berries of the Tree Ivy and Pyracantha, and a few sprays of wild Grasses.

F. W. B.

Cyclamens and Sun-heat.—I have just read with interest Mr. Coruhill's letter (see p. 130) about Cyclamens and sun-heat; I cannot, however, see that the mystery about Cyclamens is cleared up by it. My reason is this:—The whole land of Palestine is covered with Cyclamens, and during the spring months they are one of its greatest adornments. They unquestionably belong to the persicam section, and it is much to the purpose that they are by no means deeply covered with soil. I have a great many in full blossom now which I dug up a few years ago with the greatest ease on the hills of Galilee without the assistance of an implement of any description. It is certain, therefore, that both corn and crown must be perfectly scorched during the summer months; the whole country looks like an arid waste, and the rays of a Syrian sun have tremendous power. The Cyclamens of Greece are quite different from those of Palestine; nothing can be more beautiful than the foliage of *C. hederifolium*, which I have from the island of Zante.—H. EWANK, *St. John's, Ryde*.



FLOWERS IN A VASE OF GROWING IVY.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Chrysanthemum cuttings struck at the end of the year will by this time be well rooted and hardened off; they should be at once moved into 6-in. pots, using ordinary loam made rich with one-third rotten manure and leaf-mould in equal proportions, to which a little sand has been added. There is no grosser-feeding plant in cultivation than the Chrysanthemum; to grow it successfully the soil must be rich, and in its early stages it must never be allowed to become pot-bound; for if this occur, no after treatment will ever impart to the plants their wonted vigour, as the stunted condition the roots get into when confined in little pots has the effect of prematurely hardening the shoots. It will be necessary to decide upon the desired shape of the plants; in most cases it is advisable to adopt two or three forms, but the flat, Mushroom-headed fashion should never be followed. The most generally useful for decorative purposes are plants with a dozen or more shoots, ultimately trained with just as many sticks as will support them. All plants intended to be grown thus, should, at the time of potting, have the points pinched out to induce them to break several shoots; this shape will be found the most suitable for the medium-sized, freest-flowering of the large varieties, and also for the Pompones. Many of the large kinds that produce the finest individual blooms, are not capable of being seen in their best form if many flowers be allowed to each plant; for ordinary purposes, six or eight will be enough on each; for growing in this way, the plants must be also stopped now to cause them to form three or four shoots. Amateurs who are disposed to attempt the production of a few of the finest flowers, may do so by only allowing each plant in a 9-in. or 10-in. pot to carry from one to three flowers; these will be found very effective when in bloom if arranged in the greenhouse amongst the dwarfier growers, relieving the even surface, which is justly held objectionable in a stage filled with Chrysanthemums of nearly the same height. To grow them in this way the young plants now potted should not be stopped at all, but simply trained to a single stem all through the season, allowing it to branch out in the summer near the top, to as many shoots as it is destined to carry flowers. Chrysanthemums are frequently seen but mere shadows of what they are capable of being produced, yet they are easily managed, and well repay a little extra attention.

Cinerarias and Calceolarias.—Cinerarias from the second sowing made late last spring will now be pushing up their flower-stems, and will be benefited by using altogether liquid manure of a moderate strength; this treatment will be found of greater efficacy to the plants than giving it in a stronger state alternately with clear water. If some of these late-sown Cinerarias be removed to a frame placed where it will not be directly under the influence of the sun, the supply of these useful flowers will be considerably prolonged; all the protection they will now require can be given, should a little frost occur, by shaking some litter round the sides of the frame, and covering the lights with a couple of mats. Herbaceous Calceolarias, that have now filled their pots with roots and are pushing up their flower-stems, will have their blooming capabilities much increased by the continuous use of liquid manure; these should be in a warmer place than the Cinerarias, and a vigilant look-out kept to see that aphides do not get established upon either of them.

Pelargoniums.—The earliest-blooming, large-flowered, and fancy Pelargoniums will now be showing their flowers, and as the roots by this time will have taken full possession of the soil, they should be supplied with manure water once or twice a week; if attention in this matter be not paid to these plants, there is a difficulty in keeping the foliage of that dark green, healthy hue which so much enhances their appearance when in flower.

Bedding Plants.—Cuttings of Verbenas, Heliotropas, Ageratums, Petunias, Lobelias, and Fuchsias, should be taken off and put in to strike, as the old plants furnish them of sufficient size; see that they are quite clear from green fly when put in, otherwise they will do little good; should, however, any be found upon them, the best plan is to dip the cuttings in Tobacco-water, washing them in clean water afterwards. Keep on propagating the more tender kinds of bedding subjects, including Alternantheras, Iresines, and Coleuses, until there is not only enough to plant, but a good reserve to fall back upon in case of loss. Dahlias of choice varieties that are intended to be increased by cuttings should now be put in a slight heat; if the roots be placed in a broad, shallow box, with a little soil about them, they can be set near the front lights in a Vinery that happens to be at work, which is much better than the usual practice of putting them on the floor of the Vinery, from which position they are likely to get drawn up weakly; such a house as the above not being available, a frame on a slight hotbed will be found ample for the purpose. Tricolor Pelargoniums, being so much

slower in their growth than the ordinary green-leaved kinds, should, if possible, be kept warmer than the latter, so as to get them up in size before planting-out time, for if not sufficiently large when turned out, the little progress they make causes the season to be half over before they produce the desired display: 50° at night will not be too much for them. The above treatment will answer either for plants struck last summer or for such as were taken out of the beds, cut back, and potted in the autumn. Some annual Stocks should be sown in small pots, dropping half-a-dozen seeds into each; these ought to be stood on a slight hotbed or in a house where there is a little warmth, being careful not to over-water the seeds before vegetating, or the young plants when up until they have acquired some strength, as they are extremely liable to damp, the best preventive of which is to keep them as close to the glass as possible directly they appear aboveground. If well attended to and a little more root-room allotted to them as they require it previous to planting-out time, they will flower in advance of later sowings.

Peaches and Nectarines.—The advanced state of the bloom will render it necessary at once to complete the pruning and nailing. The principal thing that amateurs ought to observe in carrying out this work is to encourage and retain, so far as possible, over the whole surface of the tree an even amount of bearing wood; this is especially necessary in the case of young trees, which are often spoilt by getting the bearing shoots to the upper and outer portion of the branches; this is generally caused by retaining too many strong branches in the centre of the tree, whereas, if they be kept more open, there is room for a uniform quantity of young bearing shoots that can always be had with sufficient foresight. In shortening a young shoot of last summer's growth near the base or centre of the trees, the operator should always bear in mind that there is a twofold object in view—the production of fruit for the current year, and the growth of one or two young shoots that will be laid in during the summer for fruiting next year. The point to which he cuts back should, so far as practicable, be regulated by the most suitable position for the present season's growth to occupy. After the tying and nailing is complete, use every means, as recently recommended, to retard the bloom by keeping the sun from it on bright days.

Peas that were recommended to be sown in turves a short time back, if placed where there was any heat, must be removed shortly after they are up to cooler quarters, otherwise they will be drawn up weakly. A diligent look-out must be kept on Peas that have been sown out-of-doors and are now about breaking through the soil, to see that they are not eaten by sparrows, for if these birds discover them just as they get aboveground, they will frequently destroy a whole crop in a few hours. A little soot dusted over them when damp will preserve them from injury so long as it remains, but being liable to be washed off by the rain, it is better to use the white threads as suggested in a former number for bush fruits.

Seakale, the crowns of which were covered with a few ashes as recommended early in the winter, should now have about 10 in. of this material placed over them, as they will shortly begin to grow, and, so treated, will blanch perfectly and be found superior to any forced Kale. When of sufficient size to use, all that is required is to remove the ashes, cut the young shoots off at the tops of the crowns, and subject them to a slight washing, which will free them from the ashes. The stools may remain where they are to make growth for another season; they will need no further attention except the keeping of the ground free from weeds, and cutting out the flowering stems which will be pushed up during the summer.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

March 5.—Potting Gazanias, Chrysanthemums for bedding, and various kinds of Verbenas. Shifting Daphnes, Cherozemas, and Camellias into larger pots, using a compost of loam, peat, sand, leaf-soil, and cow manure for the latter. Potting off young Egg-plants, and re-potting Eriosteumons in 1 am three parts, sand and peat one part; also Epaxises and Heaths. Shifting one-year-old Vines into their fruiting pots, using two parts loam and one part manure. Sowing more Sweet Peas, Mignonette, and Radishes; also Parsnips and Musselburgh and Ayton Castle Leeks. Planting out first Melons; also Globe Artichokes and Potato Onions. Pricking off more Lobelias and placing them in a genial moist heat in Vinery; also first-sown Lettuces in heat, and pricking off Humeas. Blocking *Lelia* autumnalis Ruckeri. Putting in cuttings of variegated Pelargoniums, *Begonia parviflora*, and Plumbago; also inserting cuttings of Tree Carnations on hotbed. Earthing up Potatoes in pit. Top-dressing

young pot Vines and large Rhododendrons, the last with peat. Putting Forty-fold and Dalmahoy Potatoes in Mushroom-house to sprout. Digging among Globe Artichokes; also land for first crop of Carrots and Turnips. Manning and levelling Celery land for Strawberry-berries. Returning bare places in pleasure grounds, and levelling up holes in turf about the lawn. Protecting Plums with nets. Putting down shaling over Orchids. Covering new Mushroom-bed with straw. Washing Camellias with strong Tobacco-water to which 2 oz. of soft soap has been added to the gallon. Cutting down all plants of *Erica hyemalis*. Pruning Hybrid Perpetual Roses. Thinning Peaches in second house a little. Giving Strawberry plants guano-water, and pot Vines some Stanlen's Manure. Dusting lime and soot over Plum trees again. Raising first Peach-house to 58° at night and 63° by day; also second Vineries to 65° at night.

March 6.—Potting Crystal Palace Scarlet Nasturtiums, scarlet Lobelias; re-tubbing Jasminums and Passifloras; also potting large Clematises and shifting into conservatory. Dividing and potting Musk; potting young Fuchsias and Coleus. Sowing Scarlet Gem Melons. Planting Jerusalem Artichokes, and preparing to plant Potatoes close to Peach wall; also planting out remainder of autumn-sown Cabbages. Putting in cuttings of *Achyranthes*, *Salvias*, and *Senecio*. Earthing-up autumn-planted Cucumbers. Putting Dahlias into heat, and Lilacs into Peach-houses for forcing. Digging land for main crop of Carrots and second crop of Broad Beans. Clipping Privet and Holly hedges. Stopping Vines and hoeing among Strawberry plants.

March 7.—Potting dwarf Roses, old and young Fuchsias; also *Myosotis*, a few more *Calceolarias*, and all Dahlias that are struck. Shaking out and re-potting standard Heliotropes, and placing them in heat. Sowing *Perilla*. Putting out Cucumber plants, planting Seakale thongs that are sprouted, and Potatoes under the protection of a Peach wall; likewise a few more Bath Cos Lettuce. Pricking off Borage. Shifting *Aerides*, keeping all live roots on top of pot. Shaking out and re-potting *Cypripediums*. Putting in cuttings of *Euphorbia jacquiniæflora*. Putting more Endive in heat. Preparing rough manure for spring Cucumber plants. Earthing-up more Potatoes. Manuring border for seed-beds. Putting a little straw round Rhubarb roots that have started to ward off frost.

March 8.—Potting Azaleas and *Agatha cœlestis*. Putting into heat all spring-struck Verbenas and young Fuchsias. Potting more French Beans for forcing. Sowing *Godetia*, *Clarkia*, *Collinsia*, *Euclide*, *Calliopsis*, *Zinnia*, *Alonsoa*, *Dianthus*, scarlet Stocks, and *Eschscholtzia* in pots, and placing them in cold Vinery; also James's Keeping and Strasburg Onions, Leeks, Sandringham White and Ivory's Pink Celery, Early Horn Carrots, and Early Dutch Turnip, likewise a bed of Radishes under the protection of a wall. Planting Laurels, Roses, Violets, Early Potatoes on south border, and transplanting Canlidower from pots to hand-lights. Putting strings over young Peas to frighten away sparrows. Beginning to give Strawberry plants in pots more liberal waterings. Levelling ground for third crop of Peas. Cleaning Asparagus beds. Thinning Grapes. Painting late Vines. Keeping Muscat-house just coming into flower at 65° at night and 68° by day. East India Orchid-house to 65° at night, and *Cattleya* and *Dendrobium*-houses at 60° at night.

March 9.—Potting Palms and *Panicums*, and also Azaleas that have done blooming, and old Verbenas. Potting off Alyssum and shifting French Beans and one-year-old Vines, the latter into their fruiting-pots. Shifting old Fuchsias that were shaken out a month ago into larger pots. Planting *Cypresses*, Hollies, and other shrubs, and finishing planting all early borders of Potatoes, and getting in main crops of Potatoes; also remaining Horseradish, Sage, and Thyme. Putting in roots of Asparagus for succession, and introducing into heat more scented Verbenas, Lilacs, Ghent Azaleas, Roses, *Dielytras*, *Deutzias*, &c., for conservatory decoration. Putting cases over two rows of Black Prince Strawberry plants, and letting down wall coverings every night. Covering a ridge of Seakale with short manure 15 in. thick. Pruning standard and other Roses. Forking in manure among Artichokes. Thinning Strawberry blossoms and syringing Peach trees on open walls with sulphur-water to prevent mildew and curl. Watering Strawberry plants and French Beans with weak guano-water. Clearing out frames for Dahlias. Raking and clearing Asparagus beds. Clearing out Violet-pit and making it ready for scarlet *Pelargoniums* to be grown on for flowering in pots. Sowing *Victoria Stocks*, Balsams, and Cockscombs in pots.

March 10.—Potting *Vesuvius* and *Christine Pelargoniums* and yellow *Calceolarias* for flowering in pots. Potting off *Chrysanthemums*; boxing off *Salvia fulgens*; and shifting Tree Carnations. Sowing *Virginia Stocks*, *Clintonias*, *Godetias*, and more Turnips and Early Horn Carrots, on Peach border; likewise sowing pickling and other Onions, Leeks, and Parsley. Earthing up remainder of Sea-

kale crowns intended for blanching. Clipping Box edgings and finishing cutting Grass edgings. Digging border ready for *Glaucium*. Stopping Vine shoots that are sufficiently forward for that purpose. Putting pot Vines in warm Vinery, and some little Azaleas into a cool house to retard their blooming. Putting frames over latest-planted Potatoes on leaf-bed. Putting flower-pots over Seakale crowns, and covering them over with soil. Watering Muscat and Hamburgh-house borders; also all Potatoes in frames. Filling Cucumber-pit with fermenting material ready for planting with spring-sown plants.

Orchids.

The new growth of even the more erect-growing varieties of Orchids will be found to produce the foliage naturally in such a way as to prevent any lodgment of water in the heart of the plant, the last-made leaf being near the middle and inclined forward, a position which it retains until another leaf comes up and takes its place, when the former ones assume a more erect posture, and so on until the growth is completed, and the pseudo-bulb or stem becomes harder and less liable to be injured by water lodging in the heart of the plant. The different kinds of *Phalenopsis*, *Saccolabium*, and *Dendrobium*, afford ready examples of this peculiarity or means of self-preservation. Healthy specimens of *Phalenopsis* bearing large, fleshy leaves, may frequently be seen with the last new leaves hanging down almost immediately in front of the plants; this mode of growth is natural, and whenever it occurs, the foliage should not be placed in any other way; but, unfortunately for the plants, many cultivators think otherwise, and whenever the *Phalenopsis*, *Saccolabium*, &c., send out their foliage in the manner described, they are subjected to a kind of torture by means of sticks and matting, whereby each pair of leaves is retained in position opposite each other, and the plants being thus deprived of their natural protection against drip, often lose their middle leaves or become spotted in the centre. The young growths of the greater part of the *Dendrobes* are inclined forward, and even although it may be desirable to have the plants trained upright before flowering, the young growths should not be so arranged until their progress has been completed, some of them are more impatient of being looped up than others, the very worst being *D. Dalhousianum*. This plant, when trained into any other position than that which it naturally assumes while making its growth, is almost sure to lose its growth the first time that water is allowed to lodge in it; hence we so frequently see *D. Dalhousianum* with the remains of a growth only 2 in. or 3 in. long, which should have grown to a length of 4 ft. By far the safer way to deal with most *Dendrobes* is to make basket plants of them, and allow them to grow as they like. The temperatures during March should be—East India or warm-house, from 65° to 70° by day, and 60° at night; *Cattleya* or intermediate-house, 60° to 65° by day, and 55° at night; *Oulotoglossum* or cool-house, 55° to 60° by day, and 50° at night, the higher day temperatures being for sun-heat. Those who have but one Orchid-house should treat it as an intermediate-house.—JAMES O'BRIEN.

The Riviera and its Flowers in January.—The following is a list of shrubs, &c., in flower at San Remo in the open air in January last:—*Habrothamnus tomentosus* (covered with hive-bees), *Eupatorium Maurisii*, *Ageratum mexicanum*, *Salvia cardinalis* (bright scarlet), *S. involucrata*, *S. rosea*, *Datura arborea fl. pleno* (covered with flowers), *Schinus Molle* (in red berry), *Ligustrum lucidum* (in rich black berry), *Chrysanthemum fruticosum*, *Abutilon album*, *Sparmannia africana* (in abundant flower), *Agathæa cœlestis*, *Narcissus Tazetta*, *N. papyraceus*, *Linum trigynum* (one mass of flowers), *Eriocephalum aromaticum*, *Polygala grandiflora*, *Teucrium fruticosum* (flowers light blue), *Jussiaea speciosa*, *Kennerlyia ovata* (flowers white, blue, and pink), *Solanum capsicastrum* (in abundant ripe berry), *Heliotropium peruvianum*, *Lantana crocea*, *L. versicolor*, *Eucalyptus globulus* (in abundant flower), *Echeveria metallica*, *Lopezia floribunda*, *Salvia ianthina*, *Lavendula dentata*, *Ricinus palma Christi* (fruit and flower), *Gazania splendens*, *Clethra paniculata*, *Freyliuia cestroides*, *Helianthemum mexicanum*, *Farfugium grande*, *Sphaeralcea umbellata*, *Templetonia retusa*, *Bignonia capensis*, *Salvia tomentosa* (a gem), *Raphiolepis indica*, *Bougainvillea spectabilis* (just showing its rich purple bracts), *Buddleia madagascariensis*, *Senecio hederacea* (in full yellow flower—climber), *Acacia Farnesiana*, *Achania Malvaviscus*, *Pittosporum Tobira*, *Salvia Hæri*, *Veronica Andersoni*, *Solanum jasminoides*, *S. lanceolatum* (flowers blue).—PETER INCHBALD, *Hovingham Lodge, York*.

Tulipa Greigi.—This was grand at Tottenham last spring: it is like an immense orange goblet, and perfectly hardy; the leaves are beautifully spotted with black.—FRANK MILLS.

SOWING ONIONS.

In heavy soils, in consequence of so much wet weather, there will be some difficulty experienced in preparing land and securing the necessary tilth for seed-sowing, and yet, in the case of Onions, every day's delay after the 1st of March, taking the average of seasons into account, will probably result in a loss of bulk or weight in the produce from a given area, unless one is in a position to irrigate when the dry weather sets in. In a season like the present, land of an adhesive nature will get close or firm enough without much artificial pressure, and where it was trenched in the autumn it should have been loosened up some time ago with a steel fork; but, under any circumstances, land of the character described cannot easily be made into a good seed-bed, and if much trampled on, its condition will become worse. In every garden there should be a few light handy planks or boards about 10 ft. or 12 ft. long and 1 ft. wide; they will not cost much, and if kept dry when not in use, they will last good for many years; and not only will they be of great assistance in carrying out many operations during bad weather in a difficult season like the present, but the work can be done cleanly, and without treading the soil into a pasty mass that will not recover its proper tone again during the season. Where there are planks sufficient to reach across the quarter or plot it is intended to sow with Onions, by marking the land off into 5-ft. beds, with alleys about 1 ft. wide between them, and laying the planks in the spaces to form the alleys, the seeds may be sown almost without a foot going on the soil, and not only so, but the work can be done in a cleanly, expeditious manner. It will be best to draw the drills across the beds, about 9 in. or 10 in. apart, and not much more than $\frac{1}{2}$ in. deep; and, if possible, some compost, consisting of wood-ashes and light, decayed vegetable matter should be used, with which to cover the seeds instead of the natural soil. Unless some such plan is resorted to, the soil, from being saturated with rain, will cake over the seeds, which will have a difficulty in breaking through the crust, and in fact many will not break through at all. During the last few years I have found a considerable advantage from sowing a considerable portion of the Onion crop in the autumn, and transplanting early in spring. In most seasons, under this treatment, the crop is nearly doubled without incurring any more cost; in fact, when you have a good breadth sown in autumn, it is only necessary to sow sufficient of some good keeping kind in spring for late use in the following spring, after the other crop is finished; and there is no occasion to sow only the Tripoli kinds, as any of the better keeping sorts will stand the winter equally well if not sown too early, and the first week in September will in most places be time enough for putting in the seed. It is better, however, to make two sowings in autumn, the larger-growing Tripoli kinds about a week or ten days before such sorts as James's keeping.

E. HOBDAV.

New Potatoes in Succession.—"J. J.'s" failure (see 164), in growing October planted early Potatoes was probably owing to the excessive dampness of the soil and atmosphere this season. In November, December, and January the rainfall was unprecedentedly great, and early Potatoes growing in frames could not get dry air enough to keep either stems or roots healthy. In favourable winter seasons very early Potatoes may be grown with success in frames with a slight bottom-heat, produced by dead leaves. The best system, however, is to grow them in large pots in pits, or houses, where a little heat can be given to dispel frosts or damp; in this way fresh crops may be had very early.—WILLIAM TILLERY, *WUlbeck*.

The Dandelion as a Salad.—When well blanched and mixed with Celery and Endive in the salad-bowl, this forms an excellent salad, and one which is most wholesome. The improved broad-leaved Dandelion is far better than the old form of this common weed. Seed sown in April will furnish strong roots for the following winter's forcing, and a dozen roots put in the Mushroom-house weekly will furnish a good cutting every day. I think more of this Dandelion than Witloof or Chicory; I do not, however, wish to say that these latter roots are not useful. Some palates may object to the bitter flavour of the Dandelion, but others, again, think this its best quality.—H. KNIGHT, *Floors*.

PLATE LXIII.

THE WORM-GRASS.

(SPIGELIA MARILANDICA).

Drawn by H. HYDE.

WHILE, as a rule, it is desirable to give in the series of plates published weekly in THE GARDEN newly-introduced plants for the most part, yet there are plants long since introduced which, from some cause or another, have failed to obtain at the hands of cultivators that recognition to which they are justly entitled. In the *Spigelia marilandica* we have a perfect illustration of this special type. Nearly 200 years have elapsed since it was first brought from the Southern States of America, and where, may I ask, do we find in gardens well-grown plants of it? Rarely, indeed, is it to be met with at all. A glance at the annexed plate will, however, at once indicate that its absence from general culture cannot be attributed to any lack of beauty; for not only does it possess that qualification as regards its blossoms, but its habit is in every way good; from the root-stock or crown of the plant arise numerous square stems to a height of 15 in., or in its native country even 30 in., sufficiently wiry or woody in character to support themselves without any artificial assistance, in addition to which it is, when established, a permanent, long-lived, herbaceous plant. The question naturally suggests itself, Why is it, then, so scarce? In my opinion this arises from several causes. First, the difficulty we experience in getting our North American friends to send us good, strong plants of it; nay, I might go further and say, to send us plants at all. There are scores of glorious things abundant in the North American woods that not one cultivator in a hundred has ever seen, and which if lifted in good, generous masses, would establish themselves and flower freely in this country. My experience of introductions from America is that they come in a most fragmentary condition: to this remark I must make one exception as regards the glorious tufts of *Cypripedium* brought over by Mr. Sturtevant last season, which produced fine, leafy stems 2 ft. high, with a brace of flowers on each. Should these remarks meet the eye of any would-be caterer to the growing demand for these American plants, I trust he will make a note of them, alike for his own benefit and that of the recipients or purchasers on this side the Atlantic. Our want of success with the *Spigelia* may be in some measure attributed to the fact that, like the equally beautiful *Asclepias tuberosa*, it is very late in appearing aboveground; the beginning or end of June is about the time that it shows itself, and in ordinary gardening work the borders have been trimmed over with hoe and rake once or twice by that time, and even with the utmost care the tops of all the young underground growth may be so far destroyed as to be succeeded by a weakly supplementary growth. This operation repeated in two consecutive seasons will result in the plant's complete destruction. Culturally speaking, our Maryland Worm-grass is usually classed amongst bog plants; to a certain extent this is correct. We are, however, apt to associate the idea of a bog with decomposed vegetable matter in a state of saturation. Now this is a condition which does not suit the *Spigelia*. In its native habitats—the States of Pennsylvania, Georgia, and Louisiana—it is met with in comparatively dry localities, where there is an abundance of rich vegetable mould of a dense peaty nature. I believe it likes good, generous treatment, and that as hitherto cultivated, it has been subjected to the very reverse. The finest plant I ever saw was at Comely Bank many years ago, growing in an ancient hotbed alongside of a glorious tuft of the rare Himalayan *Cyananthus lobatus*. Independent of its beauty, the *Spigelia marilandica*, and, indeed, all the other known species, possess valuable anthelmintic properties, which were well known to the Cherokee Indians, and it forms an element in our Pharmacopœia; the valuable officinal principles, though distributed over the whole plant, occur most markedly in the root. In olden times it used to be placed by systematic botanists in the Order Gentianaceæ, but recently it has been referred to the small but well-marked family of Loganiaceæ, to which our *Nux vomica* belongs, and in which, besides the intensely bitter principle of the former Order, there are certain poisonous properties occurring that



render all the plants contained in it something more than suspicious; and to these our plant owes in a very great measure its anthelmintic properties.

JAS. C. NIVEN.

Hull Botanic Garden.

[We have never seen this plant grow and flower freely except in deep sandy peat. It probably would do well on the margins of beds of dwarf American plants.]

THE FLOWER GARDEN.

LILY BULBS.

I HAVE read lately in *THE GARDEN* an interesting series of articles on this subject by "F. W. B.," who quotes at considerable length observations made by Dr. Wallace on the "Bulb growth of Lilies." Among other remarks Dr. Wallace says:—"A third point I wish to mention which I have not solved to my satisfaction, and on which I shall be glad of further information from other cultivators is, Do Lily bulbs make fresh growth every year, the old growth decaying more or less, as does the Crocus?" This has been no uncommon question, though the terms have been varied according to the fancy of the writers. In the first place, I would ask, is a Lily an annual or a perennial, or is it a biennial? The origin of a Lily bulb is a germ or seed-bud. Nature causes this to vegetate and grow the first year, to bloom the second year, and then it dies—leaves, stem, scales, and roots—all perish! Such is the short though brilliant existence of a Lily bulb. If a bulb that has flowered be taken up late in the succeeding autumn, and cut in two vertically, it will be seen that it has within itself three distinct generations, viz., a portion of the old bulb, which has flowered this year, 1877; the whole of a new bulb, which Nature destined to flower in 1878; and a germ or seed-bud, which is intended to grow up to a full-sized bulb, and flower in 1879. At this time, that is, the autumn of 1877, the seed-bud will be so minute as not to be perceptible without the aid of a magnifying glass; but if a similar bulb be taken up in January 1878, and dissected, the seed-bud will then be perceptible to the naked eye, as it will be about the size of a Canary seed, and be found in the axil between the inmost fleshy scale and the base of the new stem. In February it will be six or eight times larger, and will continue to grow until in the next autumn it will be found to be as large as the new bulb was at the same time in the previous year. By a very simple experiment it may thus be proved that the old bulb of this year (1877), after having flowered, and after having all the sap absorbed from its scales for the nourishment of the new bulb, decays and dies. In like manner its successor, the new bulb, flowers the next year, decays and dies; and so on, one generation following the other year after year, and all having emanated from germs or seed-buds. Then how can it be said with truth that the bulb that has flowered this year has ever flowered before? Or, with what truth can it be said that the bulb that has flowered one year will ever flower again?

I have said that if a bulb that has flowered be taken up late in the autumn and cut in two vertically, it will be seen that it has within itself three distinct generations; to this it may be important to add that at no other time of the year does such phenomena appear. If this, then, be steadily borne in mind, many points which at present appear to be wrapped in obscurity, may easily be resolved. Hitherto it has been the habit to call a bulb taken up in October the parent bulb, but this is not, physiologically speaking, strictly correct. The parent bulb at that time is the new bulb, which is within the old one, as the new bulb has just then given birth to a young one in the form of a germ or seed-bud, while the old bulb itself is now on the eve of dissolution. The old bulb, so often called the parent bulb, has no immediate connection with the young seed-bud; the old bulb gave birth to the new bulb, and it is this new bulb that has given birth to the young seed-bud, which will grow up and flower the year after its own parent has bloomed. There is no genus in which the position of the seed-bud varies so much as in the Lily; the greater number originate low down in the centre of the new bulb, within less than $\frac{1}{4}$ in. of the base of the bulb; some originate further from the centre, and others are formed at a distance from the parent bulbs, to which they

are attached by underground or creeping axes. All, however, spring from a similar source, that is, from germs or seed-buds, and these, in October, are of so delicate and tender a nature as to be in the highest degree liable to injury from drying, exposure, or other adverse circumstances.

Dr. Wallace further says:—"When the stem shoots up from the centre of a bulb it opens up and widely separates the old scales and much enlarges the size of the bulb. I have been surprised," he continues, "to find bulbs under such circumstances of the size of a medium Orange when in flower, though when planted they were only as large as a five-shilling piece." This is clearly a mistake; for if it be borne in mind that a Lily bulb has within itself at a certain time of the year three distinct generations, it will be seen at once that it was not the old bulb as large as a five-shilling piece when planted that was found to be the size of a medium Orange when in flower. The bulb that was planted was evidently, from some cause or other, not a well-grown bulb, but being planted in congenial soil it conveyed nourishment to the new bulb which was within it, and this bulb, with the additional aid of liberal culture, grew to the size of a medium Orange, pushing open and widely separating the old scales, which afterwards decayed and died, as Nature had ordained.

There is another point to which Dr. Wallace draws our attention, which, being of the greatest value, is deserving of the amateur's thoughtful consideration. He says:—"In purchasing Lilies I should like to give my orders very early in the season, and I should request that none of the roots be cut off the bulbs, but that they should be sent to me freshly taken up and packed in some moist material. Indeed, some of the Dutch growers," he continues, "recognize this, for though they expose their roots intended for sale to the action of the sun and air to dry the bulbs and give them a colour (according to the custom of the trade), yet they require that the bulbs they purchase shall be supplied to them quite fresh and with the roots uncut. It is manifest," Dr. Wallace further continues, "that a bulb planted (say in October), rooting and drawing its supplies of nourishment, must be in a far better condition to support active growth in early spring and develop a fine head of flowers than one planted in January or February, kept dry all winter, having hardly time given to it to emit a few roots before the stem shoots up and development progresses at a rapid rate. All Lilies ought to be in their places where they are to remain by the end of October."

For these remarks, which are most valuable, Dr. Wallace deserves the thanks of every amateur who desires to possess a fine collection of Lilies. They might indeed, with great propriety, be extended to some of our own importers, who buy bulbs at auctions, thrust them into the ground, and then sell them immediately as established plants! Newly-imported bulbs are not worth a tenth part of the value of bulbs "freshly taken up" out of a respectable nurseryman's grounds, and guaranteed by him as having flowered the previous season. It is comparatively of little consequence what the quality of the bloom may have been, provided it was healthy, and that the leaves and stems decayed and died down gradually in the ordinary way; for it is the new bulb within the old one that is now to be depended upon, and that and its successors may go on, gradually rising in the scale of perfection through judicious culture.

The cutting off of the roots is the source of more evil than can be foreseen or imagined; in such a case, let me again remind your readers, that a Lily bulb, in the autumn, has within itself three distinct generations; and that the third generation is the germ or seed-bud, which is intended by Nature to bloom during the second season. At the time for lifting and re-planting, the seed-bud, as I have shown, is very delicate and tender, and so minute that it cannot be seen without the aid of a magnifying glass. I have also shown, that in some bulbs its position is within less than a quarter of an inch of the base of the bulb. If, therefore, the roots, young as well as old, be cut off, the tender seed-bud is exposed to the drying effects of the atmosphere and other evils, the result of which is that, in nineteen cases out of every twenty its vitality is destroyed. The new bulb, or second generation, may bloom, though not strongly, as it has to make fresh roots; but any chance of future bloom in the seed-bud is completely gone. It is thus

that so many complaints have arisen about imported bulbs; some bloom once, though weakly, and some do not bloom at all. How can they? Dr. Wallace answers the question by showing us, that many are kept dry all the winter, and are planted as late as January or February. "F. W. B." also aids us with this valuable remark, "that all cultivators are now tolerably well agreed that the sooner Lily bulbs are re-planted after they are moved from the soil the better."

DUNEDIN.

COLOURED-LEAVED PLANTS.

THE following is a selection of coloured-leaved plants for general outdoor decoration divided into six sections, viz., White or Silver-grey, Yellow and Cream, Crimson and Red, Green, Black and Maroon, and Variegated; together with the modes of increasing them:—

White or Silver-Grey.

CENTAUREA RAGUSINA COMPACTA.—This is one of the most useful of all white-leaved plants for marginal effect in borders and for ribbon rows; it is more compact in habit and shorter in the leaf than the old *C. ragusina* (candidissima). It is, however, not so easily increased from cuttings as the latter, but it produces seeds much more freely, and although the raised plants from them are not all of the same habit, they are easily sorted out and classified as regards size. Cuttings put in in March root tolerably freely, and make good plants by May. Those kept for stock should be placed in a greenhouse, the temperature of which is about 55° in February, and as soon as they make a few leaves, nip out the points. This will induce them to throw out a number of young shoots, which, if put in a sandy soil on a brisk bottom-heat, will emit roots in about ten days. Care must be taken not to water over the leaves, and the soil must not be allowed to get dry at the bottom.

CENTAUREA RAGUSINA CANDIDISSIMA.—This, the older variety, is easily known by being coarser in the leaf and more deeply lobed; it grows much stronger than the other, and, as has been stated, is easier to increase, and is very useful where large, broad belts are required.

CENTAUREA GYMNOCARPA is a very fine cut-leaved variety, which is useful for forming edgings to large beds of sub-tropical plants. To have it in its best condition, it should be grown in pots, starved, and then plunged out-of-doors in the pots; it is easily increased by means of cuttings, and it also comes very true from seed.

CENTAUREA CLEMENTEI and *C. ARGENTEA PLUMOSA* are both good plants if used for the same purpose as *C. gymnocarpa*. *C. Clementei* comes quite true from seed, which is the best way to increase it, and *argentea plumosa* from cuttings, which require the same treatment as those of *C. ragusina compacta*.

CINERARIA MARITIMA COMPACTA is an excellent plant with which to form different designs in beds. Unlike the old *C. maritima*, this variety is of a dwarf, close, compact habit, not exceeding 12 in. in height, and it can be stopped lower where required; it is easily increased by means of cuttings, which, if struck in March and stopped once, make bushy plants for planting out in May; it comes fairly well from seed, but some are robust in growth, while others come up weakly; therefore, to have plants for a design or ribbon-row to look well, or to be of uniform growth, they must be raised from cuttings, as in the case of *Centaurea ragusina compacta*.

CINERARIA CERATOPHYLLA.—This elegant cut-leaved variety is dwarf in habit, and in addition to its adaptation for beds and ribbon rows, it is strikingly handsome planted singly on a dwarf green surface. The mode of increasing it does not differ from that of other kinds.

CINERARIA ACANTHIFOLIA and *C. ASPLENIFOLIA* are both somewhat tall, robust-growing varieties, and are therefore best planted in belts in front of shrubs, or in rows with taller, dark-leaved plants, such as *Perilla nankinensis*. Both come pretty true from seed, but they are more uniform in growth from cuttings, as has already been described.

SALVIA ARGENTEA.—This has a large, plush-like leaf, and is very ornamental if used for edgings of raised beds or mounds where the leaves have room to display themselves to advantage. It comes quite true from seed, which may be sown either in autumn or in spring, according to the strength the plants are desired to possess. If sown in February, they make good useful plants by May.

ARTEMISIA STELLARIANA.—This, though somewhat spreading in habit, is nevertheless inclined to grow upwards, but if topped and pegged down it is useful for large beds, and makes a good, broad edging plant. It is not so white as the compact varieties of the *Centaurea* and *Cineraria*; on the contrary, it has more of a soft

greyish tint. It is easily increased, as every little piece of it readily emits roots in a few days if placed on a gentle bottom-heat. At the end of summer the same result may be realised by placing them under hand-glasses in a shady place.

GNAPHALIUM LANATUM.—This resembles the *Artemisia* in colour, and will be found useful for several purposes, as it bears clipping and pegging well. It is also, like the *Artemisia*, easily increased.

DROIS MARITIMA is a pretty plant for marginal effect, but being of a somewhat tall habit of growth, it requires to be planted where it can be stopped at the points and pegged down one shoot over the other, when all the laterals growing erect make a neat and pretty edging. Young shoots of it strike early in autumn or spring, care being taken not to water overhead. Cuttings of it struck in autumn make the best plants for planting out the following year.

SANTOLINA INCANA.—This has a pleasing shade of colour, which serves to tone down the brighter tints. It is rather a difficult plant to increase in the autumn if great care be not exercised; while in February cuttings of it in heat in sandy soil, and not kept too close, strike freely, but the plants thus produced are not of much use that season. It makes good edgings, and is also useful for carpet bedding.

CERASTIUM TOMENTOSUM.—This is a good plant with which to form designs in beds or for edgings, as it will stand any amount of clipping, and may be made into any shape. The best mode of increasing it is to put five or six little shoots into small pots in the latter end of summer; give them a good watering, and keep them in the shade until they are rooted, which they will soon be, then move them to a cool, dry frame, in which they may be wintered, and they will be bushy plants for use in the following May.

CERASTIUM BIEBERSTEINI is a little broader in the leaf than *C. tomentosum*, and has rather a stronger habit, but the same kind of treatment suits both sorts.

ACHILLEA UMBELLATA.—This makes good edgings for small beds, forming, as it does, dwarf tufts about 3 in. in height. Its leaves, which are deeply cut, lie thickly one over the other. In order to increase it, it should be divided into small tufts in autumn, and it is a plant that requires to be well rooted when planted out, or it is liable to be die off here and there, and then it becomes patchy.

VERONICA CANDIDA.—This is a useful plant for carpet bedding, its leaf-growth being close and upright, and of a beautiful glaucous-grey colour. It is easily increased by division in autumn, and every shoot will make a plant for the following year.

LEUCOPHYTUM BROWNII.—This is an excellent plant with which to form lines in carpet bedding or designs, possessing, as it does, a peculiar tint of lavender-grey. Cuttings of it should be struck under a bell-glass in spring, but owing to the sparse growth of the plant, they require a season to get them large enough for planting out; after being pegged down they soon push up and fill out the places allotted to them, but they must be pegged in a uniform way in order to insure success in the arrangement.

SENECIO ARGENTEUS.—This is one of the prettiest little plants in its way with which I am acquainted, its leaves being of silvery whiteness. It is rather a scarce plant, but if used for dotting here and there in carpet beds among other suitable colours, it produces a fine effect. Cuttings of it put in in autumn soon emit roots, when they should be potted off singly, and placed near the light on a shelf in a cool greenhouse for the winter.

ANTENNARIA TOMENTOSA.—This, the dwarfest of all plants possessing the same colour, is found to be very useful for carpet bedding, or as a groundwork below other plants. It is easily increased by division at any time of the year, but autumn is best if a quantity of plants of one size be required. It is a fine plant with which to cover mounds or banks.

Yellow and Cream-coloured Plants.

STELLARIA GRAMINEA AUREA.—This is one of the best of plants either for carpet-bedding, for edgings, or designs, as it submits readily to clipping, after which, in a day or two, its bright golden colour is as beautiful as ever. It may be increased in autumn by division in the same way as the *Cerastium*, and it also strikes freely in March on a slight bottom-heat. It should be kept near the glass, and never quite confined, or it will become drawn and weak.

PYRETHRUM GOLDEN FEATHER.—This is so well known that little need be said respecting it; it is a plant that cannot well be dispensed with, inasmuch as in carpet-bedding, ribbon rows, or edgings, it is equally good. It comes quite true from seed, which is the best mode of increasing it. It should be sown in October, and the young plants should be pricked off into pans or pots, and potted off in February if good plants for planting be desired.

PYRETHRUM LACINIATUM AUREUM is of a 'dwarfer' habit than the Golden Feather, and much more lacinated in the leaf, which in spring is of a fine golden yellow; but as warmer weather sets in, it is not equal to the old variety as regards colour; it likewise comes true from seed.

SEDUM ACRE ELEGANS.—This charming little cream-coloured Stone-crop makes excellent edgings for beds, which might also be filled with it. Every little piece of it emits roots freely in autumn; and when struck, the young plants do best during winter in a dry frame, as it is not so hardy as the green kind.

MESEMBRYANTHEMUM CORDIFOLIUM VARIEGATUM.—This is another useful plant of pale creamy-yellow tint, which for carpet-bedding is invaluable. It is easily increased by means of cuttings, put in in pans or boxes in autumn, and wintered on a shelf in the greenhouse. It requires little or no water after the first watering till February; when, after it shows signs of growth, it should be potted off ready for planting out in May.

LAMUM MACULATUM AUREUM is a pretty golden-leaved plant, with a white stripe down the centre of each leaf; where beds are shaded by trees this makes a lovely edging plant, or, better still, in a bed where a silver-grey tinted plant, such as one of the *Cerastiums*, forms the margin. It does not do for carpet bedding, as, if placed in a sunny aspect, it is liable to be attacked by red spider, and soon looks shabby. It is easily increased by means of cuttings, put in in autumn in a cool, shady place, and it should be wintered in a cool, dry frame: the cold cutting winds cause its leaves to shrivel up, and therefore must be guarded against.

LYSIMACHIA NUMMULARIA AUREA is a beautiful, deep golden-yellow-leaved plant, useful for planting in a nook or corner, either on the rockery or as an edging plant in a northern aspect, where it will retain its colour the whole of the season; being naturally of a trailing habit, it requires a little attention to keep it within bounds. Cuttings of it put in a cool, shady place early in autumn strike readily.

TRIFOLIUM REPENS AUREUM.—This is a beautiful golden-leaved form of the well-known *T. repens*. Like the *Lysimachia* it requires a cool aspect, and when used as an edging to beds of *Centaurea* or *Cineraria compacta*, on a grassy bank, it has a fine effect. Every little piece emits roots freely, and therefore it may be easily increased in the autumn.

FUCHSIA GOLDEN TREASURE is one of the best plants that can be used for ribbon rows, or for margins of sub-tropical plant beds, inasmuch as it hardly ever exceeds 18 in. in height, and possesses a fine tint of orange-yellow. Like its ancestor, *Souvenir de Chiswick*, its habit is branching and bushy.

FUCHSIA GOLDEN MANTLE.—A more robust kind than the *Golden Treasure*, with leaves of a fine golden-yellow colour. Both this and the last are easily increased by means of cuttings put in on a slight bottom-heat in February. Plants of one year's growth are best for immediate effect if properly prepared.

CHRYSANTHEMUM SENSATION.—This is a useful, creamy-yellow-coloured plant, which is easily raised from cuttings. These put in in February, and stopped once, make good plants for planting out in May.

COLEUS AUREUS FLORIBUNDUS is a neat, yellow-leaved plant, of remarkably close habit, and one which, if stopped at once, makes bushy plants for fancy beds in summer. Cuttings of it should be struck in bottom-heat, and hardened off by degrees before being planted out.

PELARGONIUM, LITTLE GOLDEN CHRISTINE, YELLOW GEM, and CRUID'S SEEDLING, are all useful varieties: the first is the dwarfest and best as regards colour, but all of them might be used with good effect in the formation of margins in large beds. Cuttings of them should be put in in sandy soil in the open border early in autumn, and they should be potted as soon as rooted, and wintered on shelves in a greenhouse.

THYMUS MARGINATUS ELEGANTISSIMUS.—This is one of the most compact and beautiful of plants, and one that can be used for either carpet bedding or for scroll work. It retains its rich golden tint throughout the summer season, and it is easily increased early in autumn by means of cuttings put in in a cool, shady place, potted off in spring, and kept growing on for use in May.

Crimson and Red.

ALTERNANTHERA AMENA, A. A. SPECTABILIS, and A. SPATHULATA.—These are the most useful plants in this colour for carpet bedding or for use in the shape of lines to divide colours in beds. *A. amena spectabilis* is a little better coloured, perhaps, than the type. *A. spathulata* is somewhat lighter in colour, and when it assumes its true character in summer it has a fine effect. All the *Alternantheras*

are best increased from the young, high-coloured points, put in as cuttings in March on a brisk bottom-heat—the soil should be loam and peat finely sifted, and made very sandy—when they will emit roots in about ten days and make fine plants for use in June. All the *Alternantheras* require to be planted very closely together, both for immediate effect and regularity as regards growth.

AMARANTHUS MELANCHOLICUS RUBER is an annual which makes a fine ribbon row or a mass of colour in a large bed. It comes rapidly forward from seeds sown in March; when sufficiently large it should be pricked off into pans or pots, and when necessary potted off and placed on a spent manure-bed close to the glass to keep the young plants from becoming drawn.

IRECINE HERBSTI SPLENDENS.—This is a selected variety, and is much brighter in colour than *Herbsti*. It is a useful plant either for rows or masses of colour in beds. If kept pinched back, it may easily be kept in a dwarf state. Cuttings of it put in at any time of the year strike readily.

COLEUS VERSCHAFFELII SPLENDENS.—This is also much brighter in colour than the type. It is useful for large beds or ribbon rows, and its colour is improved if the plants be plunged in the pot and set closely together. Cuttings of it put in in February strike freely on a brisk bottom-heat if not kept too moist. When potted off let them have plenty of room, in order that they may be short-jointed and uniform in growth.

Green.

VERONICA REPENS.—This is a half-trailing plant with very small foliage, and for running over raised mounds or beds it will be found valuable, especially as a carpet for such plants as *Cineraria ceratophylla* and others of similar habit. Cuttings of it put in in autumn strike freely in a shady situation placed under hand-glasses.

CERASTIUM ARVENSE is one of the best bright green plants that can be used for carpet bedding or for narrow, divisional lines. It stands clipping into any shape, and may be readily increased in autumn by division and treated as are other *Cerastiums*.

ARENARIA CESPITOSA (Spergula pilifera).—This pretty Grass-like plant has been used with good effect both for lawns and verges, and also for small banks, or anywhere, in fact, where a smooth, flat surface is desired; it, however, requires to be patted down or rolled now and then. The best way in which to rear it is to make a flat bed and dibble in little pieces of it in May, giving them a good watering if the weather be dry. If kept rolled occasionally during the summer it will become dense, and may be lifted and laid down as one would turf.

HYDROCOTYLE MOSCHATA.—This is a small, truly useful, pale green, round-leaved plant, the habit of which is dense and dwarf, scarcely exceeding 2 in. in height. It is a beautiful plant with which to form designs. It is easily increased in autumn by division, and it should be wintered in a frame.

SEDUM LYDIUM.—This is one of the prettiest, dwarfest, and most lovely green plants with which I am acquainted, and it is one which will be found useful wherever a fine emerald green is required. It is increased by division early in autumn, when every little piece will make a plant for the following season.

SAXIFRAGES.—Some of these are also very valuable where fine green tints are required. The best are *S. densa, Sternbergi, adscendens, hirta, hypnoides, and decipiens*. Little tufts of them should be potted singly early in autumn, and kept in a cold frame during the winter.

NERTERA DEPRESSA (the Fruiting Duckweed).—When covered with berries this should be placed in the orange-coloured section, but it is also a neat dwarf green plant when not in fruit. It may be increased by division, and should be wintered on a shelf in a cool greenhouse.

PYRETHRUM TCHIHATCHEWI is a pretty dark green-leaved plant, well adapted for covering banks, sending down as it does a tap root which sustains its verdure even during times of drought. It will also grow luxuriantly under the shade of trees where Grass would die. It is increased by division in autumn when all its little branchlets will be found to be emitting roots, and if potted singly, will make fine plants for the following summer.

SANTOLINA VIRIDIS.—This is, perhaps, one of the best upright-growing plants that can be used for a straight line. Its beautiful pale green leafage and close habit render it useful where well-defined lines are required. It may be increased in autumn and spring—in autumn, in a cool shady place out-of-doors; in spring, by means of cuttings put in a warm greenhouse under a bell-glass.

THYMUS ERECTUS.—This resembles the *Santolina* in its erect habit of growth, but its colour is more sombre—almost, in fact, an invisible

green. Cuttings of it treated like those of the *Santolina* root freely.

TANACETUM VULGARE CRISPUM.—This is one of the handsomest plants with which I am acquainted, either for forming masses of green, or in the shape of individual specimens set on a greyish ground colour, such as that of *Sedum glaucum*. It is increased by division in autumn, when every crown will make a plant.

MELIANTHUS MAJOR.—This handsome biennial, if sown in spring and cultivated during the summer with care, giving it greenhouse treatment in winter, and properly hardening it off before planting it out, makes one of the most effective glaucous green beds that can well be imagined. If managed in this way, it will attain a height of from 3 ft. to 4 ft., and when belted with *Cineraria maritima compacta*, *Pyrethrum Golden Feather*, and margined with *Cerastium tomentosum*; it has a striking effect, especially when viewed from a distance.

Black and Maroon.

COLEUS REFULGENS.—This is the darkest-leaved plant that we have, and one which looks well when used in a mixed bed, with the yellow blotched-leaved *Abutilon*, margined with *Pelargonium Princess Alexandra*. It is increased like other *Coleuses*.

PERILLA NANKINENSIS.—This has long been a favourite, but the rarer form, *P. laciniata*, is however much the best, as it has not such a weedy appearance. Seed of it should be sown in March, and the young plants should be treated the same as those of the *Amaranthus*.

IREFINE LINDENI is useful for ribbon rows or as beltings in large beds. It may also be used for small beds, as it will withstand pinching back well. Like *I. Herbsti*, cuttings of it strike freely at any time of the year; for May planting the best are those struck in February, and grown on in a spent manure bed near the glass.

COLEUS EMPEROR NAPOLEON.—This is a dark-leaved plant, and one about equally as hardy as *C. Verschaffelti splendens*. If plunged in pots the same as that variety it assumes a fine crimson-maroon tint, very distinct from that of any of the others, and it may be increased in the same way.

Variegated Plants.

CHAMÆPEUCE DIACANTHA.—This, the variegated Fish-bone Thistle, is an interesting plant, and one that can be used with good effect. Being of a silvery hue, yellow should be in close proximity to it if on a green ground. Seed of it sown in February and carefully attended to, will furnish good plants by May, but the best for immediate effect are those sown in September, in a border in the open ground, potted up carefully, and afforded greenhouse treatment during the winter.

ARUNDO DONAX VARIEGATA is one of the most stately of silvery variegated, Reed-like plants, and one that can be used either as single specimens or in the form of a mass, if not planted too closely together. It is perfectly hardy, but needs protection in winter from damp; dry Fern fronds or leaves make a good covering for it. It may be increased by division in April, when it emits roots freely and makes rapid growth.

ACANTHOPANAX QUINQUEFOLIA VARIEGATA.—This is a pretty greenhouse shrub, but it is equally well suited for beds or belts. For both purposes plants of two years' growth are best, being about 18 in. in height. In colour it is creamy-white, and it associates well with *Iresine Herbsti splendens* or *Amaranthus melancholicus ruber*. It is increased by means of cuttings put in late in summer under bell-glasses, and also by means of roots; but plants from the latter are generally more tender and weak in growth than those from cuttings, and they do not make such uniform bushes.

ABUTILON NIVEUM AUREUM MACULATUM, with its beautifully spotted and blotched leaves of green, golden-yellow, and cream colour, is very suitable for mixed beds in which *Coleus refulgens* and *Pelargonium Princess Alexandra* are planted alternately. Cuttings of it made either from tops or eyes inserted on a gentle bottom-heat and kept close for a few days with an occasional damping overhead strike readily. They however require to be gradually hardened off, or they are apt to shed their leaves.

COPROSMA BAUERIANA VARIEGATA, with its beautiful shining green leaves broadly banded with creamy-yellow, is useful for margins of large beds or borders. It requires to be pegged down, when it soon grows into shape and forms a very pretty margin. It is easily increased by means of cuttings put in in spring and early in summer, on a gentle bottom-heat under bell-glasses, and not allowed to get too dry.

FUCHSIA SUNRAY.—This is a useful plant and one which, on account of its lovely rose-pink tinge of colouring in the leaf, associates well

with other plants in a group, especially if the latter be margined with a glaucous-green or silvery-grey-leaved plant. Cuttings of it put in in February make suitable plants for planting out in May.

AGATHEA CELESTIS VARIEGATA is useful in scroll work on account of its peculiar tinge of lemon-yellow and close habit. Cuttings of it put in in autumn in a shady place under hand-glasses make the best plants for the following summer's display.

ARABIS ALBIDA VARIEGATA.—This is the best of all the *Arabises* for edgings; viewed from a distance it seems creamy-white in colour. Single shoots of it put into small pots in autumn, and kept in a dry frame during winter, make useful plants the following spring.

ALYSSUM (KONIGA) VARIEGATUM is a useful plant for ribbon rows or edgings for small beds. Small plants of it raised from cuttings put in late in summer and wintered in small pots on a shelf near the glass in a cool greenhouse are best for the following season's planting.

OPHIPOGON JABURAN VARIEGATUS.—This is a pretty Grass-like-leaved plant, and one which, if intermixed with *Festuca glauca*, would have a pleasing effect. It may be increased by division in spring.

DACTYLIS GLOMERATA ELEGANTISSIMA.—This, an excellent variegated Grass, is suitable either for beds or marginal lines. When planted alternately with *Pyrethrum Golden Feather* on the edge of a Grassy bank, it produces a charming effect. It may be increased early in autumn by division, and should be kept in a dry, cool frame during the winter.

FRAGARIA VESCA VARIEGATA is a suitable plant for a rockery in a north-eastern aspect, where its creamy-white-edged leaves are seen to advantage. It also bears fruit, which, if looked for, will be found just underneath the foliage; but it is not of much value. Like ordinary Strawberries it may be increased by means of layering the runners.

POLEMONIUM CERULEUM VARIEGATUM.—This is a good edging plant in a cool situation where it can be kept moist at the root; it also likes shade, the variegated parts being so tender that strong sunlight scorches them up. Cuttings of it struck in autumn make fine plants for next year.

LYSIMACHIA NEMORUM-VARIEGATUM is a beautiful dwarf plant with small bright green leaves finely margined with creamy-white. It makes a good edging plant for beds or borders, and it strikes readily in autumn under hand-glasses in a cool, shady situation.

PELARGONIUMS.—Some of these are useful in this section, especially the white-edged varieties, which answer either for ribbon rows or belts; they also look well in mixed beds with blue, violet, or rose colour. The best of the white-edged sorts are *Princess Alexandra*, *Avalanche*, *Miss Kingsbury*, *Queen of Queens*, *Snow Wreath*, *Waltham Bride*, and *Virgin Queen*. The best of the golden tricolors are *Dr. Masters*, *E. R. Benyon*, *Peter Grieve*, *Mrs. Pollock*, *Miss Goring*, and *Sophia Cusack*. Cuttings of these put in in an open border in September, using rather sandy soil, strike readily; they should be potted as soon as they are rooted, and kept on shelves in a greenhouse during the winter.

ALTERNANTHERA MAGNIFICA, *VERSICOLOR*, *V. GRANDIS*, *AMABILIS TRICOLOR (latifolia)*, *PARONYCHIOIDES*, and *P. MAJOR*, are all useful for carpet bedding, marginal lines, or rows where bright coloured plants are desired, *P. major* assuming a very fine orange shade late in summer.

R. H. B.

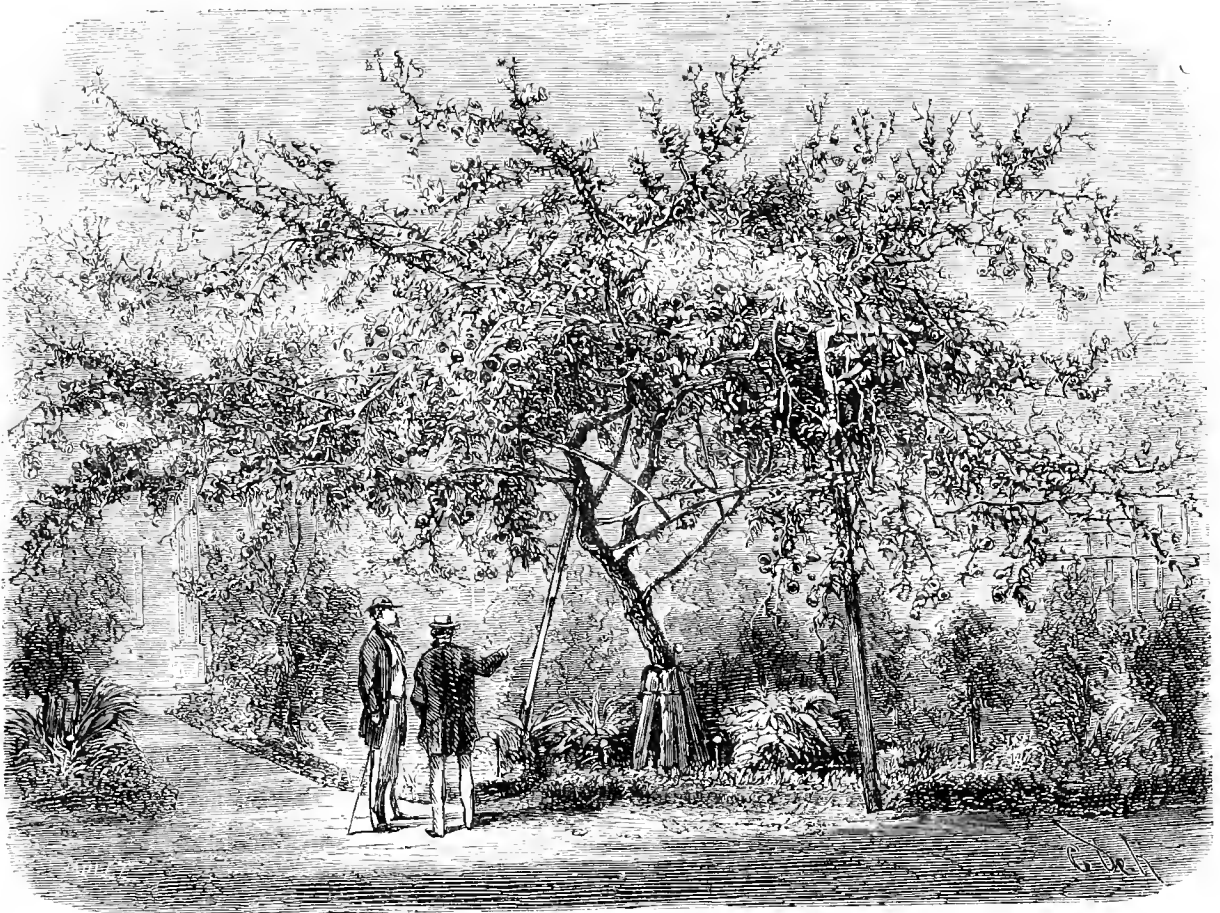
Pruning Roses.—The Hybrid Perpetual and Noisette Roses always commence to grow early in February, whether the spring be early or not, particularly those on the *Manetti* stock, that being of a more excitable character than the *Brier*. Many fear that their Roses will suffer on account of the open weather, some of them having already made shoots from 3 in. to 4 in. long. With these the cold, cutting winds in March will make sad havoc; but that is nothing new, the same thing happens every year. The rosarian has therefore little to fear, provided he has not already pruned his Roses. It is bad practice to prune early, and the first shoots can never be depended upon for producing good blooms. Do not ever be persuaded to prune your Roses until about the first week in April, when the damage done by the cold, frosty winds of March will be apparent. I have often seen the young growth of Roses so much injured by cold, cutting winds in April, that a second pruning was necessary about the end of that month. When good Roses are wanted for exhibition, they can only be procured from a shoot which proceeds from firm, well-ripened wood; always therefore prune to a firm, plump, dormant bud in the spring. All young growth that is in any way damaged should be cut out in April. From good wood come good Roses, while unripe,

soft wood produces poor, thin blooms. These observations apply only to Hybrid Perpetuals; Noisettes on walls will not bloom if pruned so severely as Hybrid Perpetuals, because the blooms are produced at the end of each shoot. When the early spring shoots are killed or injured on Teas and Noisettes, they push out again at the base of the damaged shoots; generally two shoots appear, one of which should be rubbed off, and fine blooms will be the result. If these instructions be followed good blooms may be expected, although they may be a few days later than if the trees were pruned earlier.—H. T.

Pelargonium Vanessa.—For some years I have been hybridizing and raising new Pelargoniums, a few of which I sent to Chiswick to the annual trial. Three of these received first-class certificates as hedging plants. Vanessa is one which has been much talked about, and I hope to see it in every garden worth going into. It is

ROSES FROM SEEDS AND FROM GRAFTS.

There is scarcely a garden in England, however small, but what has a Rose or two of some kind or other, and various expedients are employed by many with a view to their propagation, the most common methods of effecting which are either by budding, or by means of cuttings made of the half-ripened wood put in early in autumn. Most people have some knowledge of one or other of these modes of propagating, but there are comparatively few who are acquainted with the art of grafting, which is by far the most expeditious and certain way of increasing the Rose, as by carrying it out now good flowering plants may be had for turning out in May, or if potted on, such as will make strong bushes for blooming the following winter. Although this is the most expeditious way of raising and increasing the stock of this favourite flower, by



A Rose Tree.

a highly-coloured salmon, much flushed with orange and tones of pink, and a long way superior to Forest Hill Nosegay or Lizzie, those two being the nearest approach to it. It is very distinct, and a grand pot plant. I have never tried it as a bedder, but it was in that form when it gained a first-class certificate at Chiswick. When I say that Dr. Denny, Mr. William Paul, Mr. Richard Dean, and many others well acquainted with Pelargoniums, have spoken in the highest terms of it, I think I need hardly say more.—FRANK MILES.

A Rose Tree.—In days when the extension system for Vines is so much talked about, an illustration of a huge Rose tree may not be without interest. This Rose (Laure de Besançon) grows in the garden of M. Catelle, Avenue du Chateau, in the Commune of Lilas, near Paris; it is nearly 20 yards in circumference. In the season it is said to be covered with thousands of Roses, but of their character we cannot speak; later on, however, we or some of our Rose-growing correspondents may be able to give a fuller account of it.

far the most fascinating is that of obtaining it from seed, and those who have hitherto only worked their Roses in the ordinary way can have no idea of the absorbing interest there is always attaching to a number of seedlings when under the care of those who really love their gardens, and take a delight in the beauties of Nature. The pleasure of raising seedlings is greatly enhanced by the uncertainty of what colours they will furnish, and the expectations raised as to what they will turn out to be, whether anything like the parent from which the seed was gathered, or an entirely new kind, as is most likely to be the case. To whet the appetite of those who may be desirous to embark in raising seedling Roses, and to give them zest for their work, it is only necessary for them to know that many of the best kinds now before the public were obtained from seed saved from plants, the flowers of which had not been manipulated in any way further than what the bees

had done in their busy work of collecting honey, in which operation it has been wisely ordered that they carry the pollen with them, and thus add to our floral wealth.

Saving and Sowing Rose Seeds.

The exceedingly dry summer, and the fine autumn that succeeded, favoured to an unusual degree the setting of Rose flowers and the ripening of seeds, and as these are on that account still to be found in abundance on the plants, to many an excellent opportunity is afforded of collecting and sowing the same. The best way of doing this is to gather the hips, naming each kind as it is picked from the plants, that, when they are sown and come up, it may be seen at a glance if they differ in foliage or habit, or have any peculiarities distinct from the parent. Keeping them separate, and naming them in this way, add much to the interest of seedling Roses, as the slightest variation amongst them is sure to be noticed in the close watching they receive as they continue to develop themselves. There is something so attractive and interesting in the pursuit of raising plants from seed, especially when the aim is to produce new varieties, and such a feeling of self-satisfaction when that object is attained, that I strongly commend this branch of gardening to all who are so favoured as to have the opportunity and spare time to devote to so pleasant a pastime. It is not likely, however, that those who once take it up will rest satisfied with just gathering a few seed-pods they may find here and there, and depend for success on any accidental occurrence that may take place through the agency of bees; and it may therefore be well to say a few words as to the proper course to take in order to render the work of raising new varieties of the queen of flowers a matter of some certainty. This may be done, and certain intermediate shades of colour produced, by working from those of an opposite character, it being one of Nature's laws that like produces like, both in the animal and vegetable kingdoms. In the case of a Rose, or any other flower, it may be roughly stated that the result of fertilizing a red with the pollen of a white, or *vice versa*, would, if seeds were saved and plants raised therefrom, afford several shades of pink which would be intermediate between both parents. If the object, then, be to produce these colours, that is the way to commence operations, and the same with yellows, crimsons, or any other colour, always choosing the best-shaped flowers and the most approved kinds on which to work. Yellow is a colour in which we are sadly deficient, and it would be an immense pecuniary benefit to any one who could raise a good free-blooming Perpetual Rose of that colour, which would have something of the form and good properties of the well-known John Hopper or Charles Lefebvre. How such a desirable variety is to be obtained is another question, but it has often occurred to me that the Austrian Brier is the right stock on which to work for the seed-parent, as we have nothing like it for purity and richness of colour, so that its progeny would most likely partake of that character to a considerable extent, while the habit would in a great measure depend on the kind that supplied the pollen.

In this matter Tea Roses should not be forgotten, neither should Maréchal Niel, Solfaterre, Cloth of Gold, and similar Roses. All flowers will take their own pollen before that of any other, and therefore, to make sure of effecting a cross, the anthers of the one intended to be operated upon should be removed before the pollen becomes ripe, or it is impossible to remove it without some falling off on to the stigmas, and thus defeating the object in view. These organs of the Rose are so hidden and overlaid by the petals that the best way is to remove a few of the most central, which operation will enable them to be the more readily got at and watched, so as to be taken in hand at the right moment. It is an easy matter with the aid of a pair of long, sharp-pointed scissors to remove the anthers, which should be done by clipping them out, taking care when doing so not to injure the pistils immediately contiguous to them. As soon as these are in a fit state to receive the foreign pollen, it should be introduced to them in the gentlest manner, either by using a camel's-hair brush, or by just touching the anthers containing it, when it will adhere and effect the desired purpose of fertilization. This done, all that is necessary is to preserve from rain and wind those that are operated on, which may readily be effected by tying

them to a stake and supporting a bell-glass, the top of a hand-light, or anything of that kind over them till the pod begins to swell and the petals have all fallen, when any protection they have had may at once be removed, so as to afford them the benefit of all the sun and air they can obtain in order to ripen the seed, which in ordinary seasons is fit for gathering by the end of October or middle of November, when it should be buried in sand for the winter.

The proper time for sowing the seed is from now to the end of March, so that any still on the plants may be gathered and treated at once, the first course to pursue with which is to rub it out of the husks, that it may be equally distributed over the ground. The best place for the seed-bed is a partially-shaded situation in the garden, as the seedlings succeed much better in this way than when sown in pots or pans and placed in pits or frames, where the small body of soil they contain is ever varying in condition as to the amount of moisture it holds, and uniformity in this respect is very essential with such seeds as those of the Rose, on account of the length of time they remain buried in the ground.

If the soil in which they are to be sown be not naturally light and sandy, it should be made so, and then pressed tolerably firm before sowing the seed, which should be scattered regularly over the surface and then patted gently in with the back of a spade, afterwards covering it over with sifted mould to the depth of about 1 in. Hand-lights are a great protection in warding off both birds and mice, either of which are very destructive just as the seeds begin to germinate; and as the glass draws a considerable amount of warmth if the tops be kept closed, the hand-lights help to bring the plants through much sooner than without their assistance. Air must, however, be admitted as soon as they make their appearance, as there is nothing so impatient of a close, confined atmosphere as the Rose, especially in the seedling state, when it is young and tender, and more subject to mildew than at any other time. Should this pest make its appearance, as it is almost sure to do, particularly if the weather set in dry and the plants lack water at the roots, sulphur must at once be applied, or it will get such a hold in a few days as to cripple their growth, if not to destroy them altogether. Unless the young plants should come up unusually thick in the seed-bed so as to crowd each other, it will be best to allow them to stand for the first summer unmolested, as their progress will be much more rapid than if they were pricked off, which operation necessarily involves a disturbance to their roots, besides the danger incurred of spoiling any young seedlings that have not at the time made their appearance through the soil, as many do not come up the first year. In order to hasten their blooming any that will afford buds should have them put in on healthy, strong stocks of either the Brier or Manetti, when the following summer an opinion may be formed as to their merits, and whether it is desirable or not to keep them for further trial. In case they are not budded, no pruning whatever should take place, but the tops left intact that they may become as strong as possible in a short time, and to assist them in doing this liberal and frequent applications of manure-water should be afforded all through the growing season.

Grafting Roses.

As regards grafting the Rose, although considered by many a difficult and uncertain mode of increase, it is one of the simplest and safest, as well as the most expeditious, if carried out under certain conditions, the principal and most necessary of which are suitable stocks on which to work them, and a close hotbed, frame, or propagating box, where they can be kept tilt a union is effected, which generally takes from three weeks to a month. The ready way in which the Manetti may be struck from cuttings put in at any time during the autumn, and the manner it adapts itself to all kinds of soil and situations, have long made it a favourite stock for the Rose, and as one-year-old plants of it may be purchased at a very cheap rate, any one can soon get up a stock fit either for forcing or planting out. If for the latter purpose, and the soil be stiff and clayey, it will be as well to make use of the Brier instead, roots of which may be obtained in tolerable abundance in most hedgerows; or failing these, any from such strong growing kinds of Rose, as Gloire de Dijon, climbing Devoniensis, the

Banksian, or those of a similar character, as they are sure to push strong shoots, and are well suited as stocks for Marchal Niel and others of that habit. To be successful at grafting, it is necessary to get the stocks, of whatever kind may be determined upon, considerably in advance of the scions to be placed on them, and this can be effected by heading them back and laying them in by the heels, where they can get a little moist heat. As soon as they have fairly started they will be in a fit state to be operated upon; and, in order to get the union as low down as possible, they should be cut back to within about 2 in. or so of the roots, in the case of the Manetti being used. These are best when of the size of a Cedar pencil, as then the stock and scion may be so fitted together as to bring the bark of both in immediate contact, which insures a more perfect and certain union, although they take very readily if they touch on one side only. In taking the scions, choice should be made of wood that is firm and ripe, which may be distinguished by its nut-brown colour and the small amount of pith it contains. To save time where many have to be grafted, the best way is to go over the stock of Roses, and take off as much wood of each kind as is likely to be wanted, tying up each variety separately with the names attached, when they can be carried to the potting-shed or other convenient place to be worked. Before doing this, each kind should be trimmed by having its spines taken off, and then cut up into lengths containing two or three buds each, the lowest of which should be situated at the extreme end, and towards this, from the other side of the wood, a sloping cut should be made, commencing at about 2 in. up and terminating at the bottom, much in the same fashion as when forming a quill pen. This completed, the stock should be cut at the side slantingly to receive the scion, both of which will then fit closely together, where they should be kept by being tied tightly with soft bass matting, laying each aside till the whole are complete, when they may either be potted singly in small pots, or packed closely in soil in the propagating box or frame, if space be an object, and be potted after they are united. Even in the limited amount of room afforded by a common hand-light, at least 100 may be accommodated, and if placed on a bed of leaves, or in a warm corner of the stove, it forms a very suitable receptacle for them. If the soil in which they are laid be in the requisite moist condition, it will not be necessary to give them any water, and, if possible, it is better to avoid doing so, as it is apt to get between the scion and stock, and prevent them uniting. It is essential to success that they should have a regular uniform temperature of from 75° to 80° with plenty of atmospheric moisture, and these conditions secured scarcely one in 100 will fail to grow, provided the wood is not soft and sappy, and the stocks are in proper condition. In order to maintain the heat at an equable rate, and prevent sun and light getting at them, they should be kept closely covered up for the first fortnight or so, or till such time as they start into growth, when light and air should be gradually admitted to impart strength and vigour to the young shoots. When firmly united, as may be seen by loosening one of the ties, they may be handled with safety for potting, but in doing this the ties should be left intact, otherwise many would be displaced during the operation, and if they be potted sufficiently low, as they should be, to cover the point of junction, the matting rots away gradually, and is gone long before any rapid swelling of the plant takes place, or any injury whatever is effected from its remaining. This kind of grafting may be carried on successfully at any time from November to the middle of March, after which the buds have started, and the growth on outdoor plants is generally too forward to proceed further. Those that have been forced, however, and have tolerably firm shoots may then be brought into use, and will succeed equally well with the others if treated much in the same way; except with those having foliage, they must not long be excluded from the light. A celebrated Rose grower near here grafts many thousands from wood of this kind, and by placing the worked plants in a close, moist temperature ranging between 80° and 90°, they unite in a fortnight, when they are removed to make way for others, and thus an immense stock is soon got up in a very small space, with scarcely a failure ever occurring. Compared with this, budding and most other modes of multiplying the

Rose are very slow and uncertain, and were it not for such a quick way of working them up, we should have to wait a long time before there would be sufficient of any new variety ready for distribution. Any one, therefore, who may be desirous of increasing his stock may readily do so at once, either from wood obtained from pot plants or those already established in beds or borders; but if the latter be used, it must be such as is not injured by severe frosts.

Roses on their own Roots.

Many, however, prefer Roses on their own roots, and in light, sandy soil, and for pot culture they certainly are the most suitable. Cuttings made from the young wood from pot plants any time after this root freely, although of course they take much longer to grow into size than such as are grafted, and have the roots and strength of the stock to help them forward. In propagating the Rose from cuttings, the firmest and ripest shoots should be chosen, the best of which are generally those that have bloomed, as they are always more solid and woody than any others. A piece, containing two buds with healthy green leaves attached, is quite long enough for forming the cutting, which should be inserted separately in very small pots in sandy soil, and placed where they can have strong bottom-heat, and be kept close till rooted. Plants propagated in this way now, and well cared for during the summer by keeping them potted on in good stiff, loamy soil as they require more room, and well watered with weak liquid manure, will make fine strong subjects for forcing next winter, and will be better for that purpose, if kept from flowering till that time, than others of greater age. With some kinds of Roses, such as the Moss and many others, layering may be resorted to with great advantage in getting up a stock, and this is an operation that can be carried out at any time by simply pegging down any of the lower side branches after giving them a slight twist, or tonguing them after the manner that Carnations are treated. If laid in and covered with sandy soil to the depth of 3 in. or so, they will root within the year, and may be severed any time during the winter, and used either for planting or potting.

S. J.

Verbenas Treated as Annuals (see p. 125).—I have been very successful with Verbenas treated in this way. I purchased seeds of the Auricula-eyed varieties, but instead of treating them as hardy annuals, I sowed the seeds in pans at the end of February, placed them on a mild hotbed, and when the seedlings were large enough to handle I pricked them off into other pans, and returned them to the hotbed until they were established; I then gradually hardened them off, planted them out in beds at the end of May, and I was never better pleased with any plants which I ever grew; their colours were rich and varied, and I do not know of any other flower that would have made so gay a bed as these Auricula-eyed Verbenas. I consider beds of mixed seedlings, kept well pegged down, to be preferable to beds of any one particular kind or colour.—JOHN CLARKE.

—“H. M.” should sow his Verbenas in pans or boxes in a hotbed; they cannot be grown in the open air with any certainty, as the seed will not vegetate freely without bottom-heat. I have grown them in this way for some time past, and get quite as many plants as I know what to do with, and quite equal to named varieties sent out by nurserymen; the plants are more healthy, and grow stronger than those raised from cuttings, and they bloom quite as freely. Of late years Verbenas have so altered in constitution that they are not so much grown as heretofore: raising them from seed will, however, doubtless give us a stronger race than we have had for some years past.—W. DIVERS, *Wierton*.

—If “H. M.” (see p. 125) will patiently wait for another three months, I should think he will see lots of seedlings coming up, provided the seeds have not been buried too deeply. Verberna seed may, as far as my experience goes, remain five years in the ground if several inches of soil cover it, and when hereafter the soil is turned over, and the seed brought to the surface, it will germinate and grow vigorously. If sown in shallow pans in a warm greenhouse, about half the seed sown will come up in from two to six weeks, and the other half will lie for an entire season before it germinates.—MAX LEICHTLIN, *Baden Baden*.

Iris reticulata.—Tempted by your favourable notice of this Iris I have purchased and bloomed successfully bulbs of it, but I have two faults to find with it:—1st. Its blooms are very short-lived, the standards generally becoming limp after three or four days, and

then falling prostrate. 2nd. The bulbs, instead of increasing, simply perish outright. Am I to blame for these shortcomings, or are they inherent in the plant? After blooming the plants in the greenhouse, I place them in a cold frame, and gradually diminish the supply of water until the foliage dies down in May, when I turn out the bulbs and plant them in the reserve garden. On searching for them in autumn I have hitherto been unable to find any portion of them left. Will any correspondent make suggestions as to the best means of preserving and increasing the bulbs?—H. M., *Bromsgrove*.

Lady Downes Grape.—Most Grape-growers will, I think consider this variety to be the latest keeper grown. There may be exceptional cases in which other late kinds may be preferred to it, but let Lady Downes be properly grown, and it will be found to keep at least a month longer in good condition than any other variety known to me. In the latest Vinery where it is grown here, no fire-heat is applied, except during the flowering period and a little in the daytime during the winter months, to expel damp in wet weather. It is usually quite ripe by the end of October, and in January or February the bunches are all cut and put into bottles of water, when the last of the crop is not over before the end of May; and one year I kept some bunches until the middle of July. Lady Downes has every characteristic of a late keeper, having strong stems to the berries, a thick skin, and although the flesh of the berry is rather firm for some to enjoy, their flavour is vinous and refreshing.—Wm. TILLERY, *Welbeck*.

Splitting in Fruits and Vegetables.—It is generally said that the splitting of Grapes, Apricots, Melons, and other fruits arises from a very wet soil accompanied by an atmosphere highly charged with moisture; my experience does not entirely accord with this theory, inasmuch as in some of the districts where there is the greatest amount of rainfall, splitting is not greater than in the driest parts of the country. From several experiments I have been convinced that splitting (as well as numerous other evils) is increased by extreme drought, which causes the fruit to become hard and the tissues to become woody; then the roots (which have for some time been struggling against adverse circumstances) get full supplies of moisture, plenty of sap is pumped up into the fruit, and to give vent to the sudden excess of growth thereby accruing, an outlet must be provided. I have seen the Josling's St. Albans Grape do well, and the "splitting" proportionately small when the Vine roots have been in a west border, which was shaded by trees, and heavily manured, and cropped with strong growing vegetables, while the inside of the house was kept full of plants up to the ripening period. I have submitted Melons and other fruits grown in pots to a similar test, but only found splitting when water was sparingly given at some period of growth, and an abundant supply administered at the time of ripening, but with plants from which the frames have been removed and left to drenching rains from the earlier stages of the fruit, splitting has been the exception. Last season a plot of fine Carrots grew to a good size, but stood many weeks in the soil (which had become almost as hard as a brick) without a drop of rain or any water applied to the roots (as there were no water stores), but at last the rain fell copiously, and on examining subsequently the bark-bound Carrots, they were found to be nearly all split.—M.T.

Campanula grandiflora.—Perhaps one of the most beautiful of all hardy plants is *Campanula grandiflora*, and its white variety (syn. *Platyodon*). This *Campanula* grows from 2 ft. to 3 ft. high, and bears in quantities up its long stems wide, deep blue flowers 3 in. across. It seeds freely, blooms in July and August, and is altogether one of the noblest of our border plants.—FRANK MILES.

Growing Rare Hardy Plants.—It would be convenient if your correspondents would be a little more precise. Will Mr. F. Miles say what he means by an underground tank (see p. 121)? Is it out of or in doors? Is it heated at all? How large (in all dimensions)? What built of? Is the soil a box, or medium, or dry? What thickness is the layer of sand? I delight in nothing so much as *Cypripediums*, *Cyclobothras*, *Calochortus*, &c., and am only tolerably successful. Any light thrown on the subject of their cultivation is very acceptable. Mr. G. F. Wilson told me he grew these plants in a somewhat similar way, but on a floating stage. I think Mr. Miles's plan may be more simple: will he give details?—A. R.

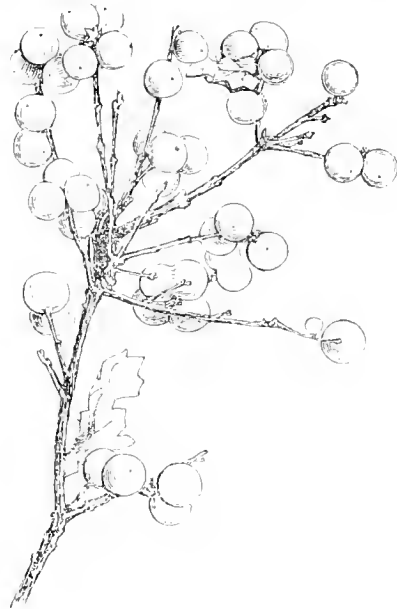
Preserving Maiden-hair Ferns in Water.—It is often a matter of annoyance in arranging cut flowers in glasses that the Maiden-hair Ferns do not last well. I find that the fronds stand well if a greater or less quantity of the pinnae be submerged in the water. Doubtless the slender rachis in this family of Ferns does not supply a sufficiency of moisture to the pinnae, but when some of these are also placed so as to absorb water, the lasting qualities of the fronds in a cut state are much enhanced. The plants used for cutting from are wintered in a temperature ranging generally from 45° to 50°, the plants being kept pretty dry all through the autumn and winter.—R. P. BAURNESTON, in "The Gardener."

Clematis indivisa (see p. 102).—Having seen this at Mr. Cripps', Taunbridge Wells, in great perfection, I purchased a plant of it, which I have grown very successfully in a pot, and now it is the admiration of all who have seen it.—J. ALLAN, *Ashurst Park, Kent*.

TREES AND SHRUBS.

OAK-GALLS.

During some seasons the Oaks in most parts of the country are disfigured and injured by the attacks of *Cynipides* or Gall-



Oak branch laden with galls.

flies. It is a curious fact that the same tree responds by the formation of a different form of gall according to the species of *Cynips* by which it is punctured. The most conspicuous disfigurement and the most exhausting to the tree is the large Oak-gall, which appears on the twigs; most other kinds in



1. Oak-gall (full size); 2. section; 3. larva; 4. female; and 5. male *Cynips*.

this country are on the leaves. The first woodcut represents a branchlet of a young Oak which the writer pulled in a Wigtownshire copse, and which bore in the short space of one linear foot no fewer than fifty-one Apples. Morbid conditions of animal or vegetable life which induce the attacks of parasites

undoubtedly exist, but the relation between them is not ascertained with any degree of certainty; and it would be difficult to say whether the unhealthy condition of a tree affected as the one from which this branch was taken was caused by, or was the cause of, the excessive outbreak of gall nuts. We may frequently see certain trees in a wood covered with galls, while the rest are almost or quite free from them. My experience is that young trees and copse are more liable to be attacked than mature trees, especially when the former are exposed to the influence of cold winds or grow on a damp subsoil. About the two latter conditions, however, I have not satisfied myself with sufficient evidence. SALMONICERS.

GARDEN FRAMES.

THE accompanying illustration shows a three-quarter, span-roofed frame for growing Cucumbers and Melons, and for storing plants, the invention of Messrs. Boulton & Paul, of Norwich; it is made so as to give greater height and more convenience than frames of that kind usually possess. The front is 11 in. high without the lights, 32 in. high at the ridge, and 22 in. high at the back. The front lights can be turned back on to the lights behind, and the back lights turned on to the front ones, thus affording free access to the plants inside. They are made of red deal and are glazed with 21-oz. sheet glass. The

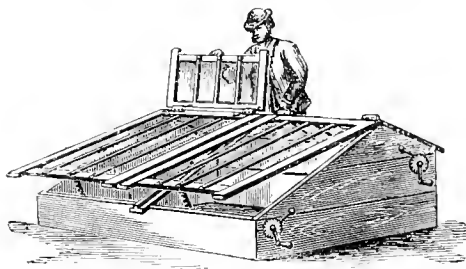


illustration shows the lights to open with gearing, by which any of the lights can be lifted up when required without altering the others. The back and front gearing works separately.

CONFESSING THEIR ERRORS.

MR. R. GILBERT'S recent suggestion in THE GARDEN as to the desirability of recording errors has been anticipated in America. At a recent meeting of the Northern Illinois Horticultural Society, as reported in the "Prairie Farmer," a proposition was made and acted upon—"That we enter into a general confession of the errors that we have made in our horticultural life. Each one was requested to state but one error, and that to be a prominent one, for everybody knows if we should undertake to tell all that we have done amiss, we should not get away from Franklin for three months.—Mr. Minkler, of Osage, said that his greatest error was planting too many varieties of Apples in his orchard. He had at this time, he said, fifty varieties that were worthless. It was a serious mistake, and had entailed on him heavy pecuniary loss. He warned young orchardists to avoid this blunder.—Dr. Slade said his error was in planting dwarf Pear trees when he should have planted standards. He had not in ten years had any fruit from his dwarf trees.—Mr. Piper said his error was in digging great holes and filling in with stone, and planting his Pear trees on them. They died the second year.—Mr. Scott said that the blunder of his life horticulturally was in planting a Pear orchard at all. He planted with great care, and on the most laborious and improved plans, but it was labour lost, and he would have his neighbours avoid his error.—Mr. Cochrane said that about eight years ago he planted 100 Plum trees, and he hoped the Society would forgive him this time, and he would never do so any more.—Mr. Scofield had blundered in planting his Apple orchard on the wrong kind of soil.—Mr. Hansen, who exhibited fifty varieties of Apples on the occasion, got up and said, in lugubrious tones, that he confessed to the sin of having set in his orchard too many varieties of Apples; while it was some satisfaction to be able to show so many varieties of fruit, it was done at too great a cost. His experience, thus dearly bought, was of value to him and others in the future. But it is a mistake to set so many kinds of Apples; the profit is in the few varieties.—Dr. Pennington said he had made so many blunders that he did not know where to begin, nor could he tell which of his many errors was the greatest. He had made a great

mistake in ploughing his orchard late, followed as it was by a very dry season. He nearly lost his orchard by so doing, and it was four years or more before the trees recovered so as to show vigour and life again.—Mr. R. A. Whitney was requested to tell how it came about that he never made mistakes. He answered curtly, 'by keeping my mouth shut.' It was remarked that the 'old sinners' hang back, and would not talk freely."

American Apples.—We have these here for some three months every year, and I am curious to know in what latitude they are grown! I am an old tropical ranger both in the Old and New Continents; and, to my fancy, these superb Apples have a "low latitude flavour which our Apples of the British Isles cannot at all equal. They are styled generally Newtown Pippins, I think, and the great majority have an aroma reminding one of a Pine-apple. New York, whence they come, is 12° or 13° south of this (Dublin) latitude; but probably the fruit is grown further south than that. I observe that they arrive in casks without there being any other material whatever besides the Apples.—ASHLEY LA TOUCHE, *Monkstown*.

PRUNING PEAR TREES.

IN Mr. Fish's article on pruning Pear trees (see p. 151), he says—"Prune your Pears in November, and your trees will be in flower in February or March; prune them in February or March, and they may not be in bloom till April or May." Ascribing to the time of pruning such an influence as this over the time when the bloom expands will, I think, be something new to the generality of hardy fruit growers. I have always held that Apples and Pears are the most important fruits which we grow, and I have for the last thirty years given close attention to their cultivation, but the result of my practice is very far from being in accordance with the opinion which Mr. Fish expresses. I am always careful to consider whether or not any given practice will be followed by similar results in all parts of the country alike, for difference in soil and situation frequently exercise such a disturbing influence. What effect the time of pruning has over the time when the Pear blooms will expand in this part of the kingdom (the neighbourhood of London) I am not in a position to say, inasmuch as I have for many years contrived to have all pruning completed before the close of the year, except Peaches, Nectarines, and Apricots. For this I have two motives: first, I have always found that in gardening matters nothing is so conducive to success as keeping well up with the work. Secondly, I have a lively recollection of the aching fingers and toes, with severe cold, caused by standing out day after day pruning in hard weather during January and February, and I have no disposition to compel others to do that which I found very uncomfortable myself; but in different places where I have resided in the north of the kingdom, I know from actual experience that the time of blooming in Apples, Pears, Plums, Cherries, Gooseberries, and Currants, is neither accelerated nor retarded so much as a single week by the trees being either pruned in November as soon as the leaves are off, or left untouched till March. Further than this I have noticed that large standard orchard trees never subjected to any pruning at all, except occasionally a branch being cut out with the saw, just bloom as early, according to their kinds, as the same varieties do grown round the quarters in a kitchen garden, and kept closely pruned in every year before Christmas. This is a subject of considerable importance, and I, for one, should be glad if hardy fruit-growers in all parts of the country would favour us with the results of their observation as to what influence early or late pruning has upon these fruits.

T. BAINES.

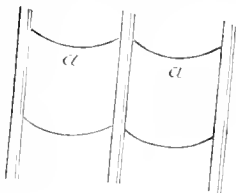
VINES BLEEDING.

WHEN once Vines begin to bleed, there is no cure. I am glad to see that Mr. Smith follows up his advice (see p. 152), with the proper remedy, viz., starting the Vines into growth at once; late starting is probably the primitive cause of the bleeding. I would even go farther than Mr. Smith, and recommend a more than ordinary temperature till once the Vines break; it is the only way of stopping a wholesale loss of sap, the groundwork of the future crop. Five years ago I had the misfortune to deal with a range of Vineries in a similar plight, where the Vines had bled themselves to a state of sheer exhaustion. The remedy my predecessor took was as Mr. Smith recommends, burning the ends with a hot iron, throwing all doors and ventilators open, and laying the Vines as far as possible from the influence of heat and light, so as to retard growth. This was in the beginning of April. Our first act was to shut up the Vineries,

and apply heat and moisture, so as to encourage young growth as early as possible, a matter not difficult at that time of the year. We had a very light crop, indeed it is hardly fair to call it a crop at all, but our object was still in view, namely, to encourage liberal growth and a long season, giving plenty of heat and air during the autumn, the result of which was well-ripened wood as hard as bone. At pruning time we thinned well out, and the following year we had a crop of fruit which was quite unlooked for. Let me recommend this treatment to your correspondent who is seeking for advice, and if he have any suspicion of his border being badly drained or choked up, it ought to be seen to next autumn, or even now if the Vines be late ones—and in future bear in mind to start late Vines not later than the first week in February; better have fruit ripened under the influence of solar rays, than have badly-ripened fruit and wood, and a waste of fuel into the bargain.—W. HINDS, *Otterspool*.

Camellia Mathottiana.—Observing this *Camellia* noticed at p. 114, I am induced to state that having grown it for twenty years, it may be safely recommended as first-rate for planting in beds, but it is very difficult if not impossible to make it do well in a pot. The flowers, being very heavy, occasionally fall prematurely, but as they alight face upwards they are none the worse for the fall, and if furnished with zinc wire-stalks, and placed in vases amongst leaves, they produce an effect not to be surpassed. *C. Mathottiana* is a strong-growing variety, and bears any amount of cutting; many of the flowers are perfect in form, others are a little tufty in the centre; but both kinds are magnificent. The flowers of the white variety reflex too much. *Camellias* which grow too early and strong, and consequently do not set flower-buds, I have caused to flower abundantly the following season by pinching off the young shoots when 2 in. or 3 in. long; this may appear barbarous, but it is effectual.—C. E. ISHAM, *Lampport Hall, Northampton*.

Glazing Greenhouses.—"D.'s" suggestion (see p. 154) respecting glazing glass roofs by making a groove in each rafter and pushing the glass up from the bottom seems to be open to one grave objection. If a pane were broken at the top of the house, all the others down to the bottom would have to be removed in order to replace it, which would be rather troublesome if the rafters were 16 or 20 ft. long. Again, the idea of having the glass hollow down the middle like a pantile is a dreadfully expensive way of attaining his object, which can be accomplished without any expense whatever, except that attending a very slight difference as regards the cutting. If the glass be cut in the shape herewith shown, the rain collects at the points *aa*, and runs down the centre of the panes without touching putty or rafter—a circumstance which helps very much to keep them in a good state of preservation; all our newest houses are done in this manner, and although glazed in the old-fashioned way with putty above and below the glass, we are never troubled with drip.—C. E. PEARSON, *Chilwell, Notts*.



An Old Plant List.—Perhaps the following list of plants sent home nearly 200 years ago may interest some of your readers. Except two fine Tulip trees in the park and a border of *Gentianella*, I know of no trace left of this old importation, sent in the ship *Jeffreys*, from Sir Edmund Andros, to the then master of this house, who was one of the Commissioners of Plantations in the reign of William III. The list is dated 1693, and enumerates among other things Myrtles, fine-flowered Ivy, flowering trees (like *Sassafras*), Red-flowered Maples, Tulip trees, *Juniperus thurifera*, Honeysuckles, Red Cherry (bearing bunches like Currants), Bottle Gourds, Black Walnuts, *Smilax aspera*, *Arbor-vitæ*, *Violas*, *Solanum magnum inbrum virginianum*, *Gentian seeds*, Sweet Oak of Virginia, *Laurus flore tulipa* (tied with *Yucca*), large roots of *Yucca*, bushel of Peach stones, roots of *Drakena contrazorva*, Dwarf Chestnuts or "Chinkapins," *Cedrus baccifera*, Black Haws (tied with cotton), large roots of Fox Grapes, Woodbine Trumpet-flowers, *Clematis triflora*, roots of *Aristolochia minor*, and roots of *Dictamnus*.—B., *Gloucestershire*.

Pruning Lonicera fragrantissima.—"C. McD." (see p. 88) speaks of the advantage of skilful pruning in the case of this Honeysuckle. I have three plants of it, two trained against a wall, and one grown as a bush, and though they all look most healthy, yet the two against the wall flower but sparsely, and the bush (which has been planted three years) has never had a bloom on it yet. I should be very grateful if your correspondent could give me a few hints about pruning this plant. We had a heavy fall of snow last night (Feb. 25),

the ground being covered to a depth of fully 6 in., and to day I was favoured with the unwonted sight of a blue Hyacinth which has been in flower for two days in the open border peeping out of a bed of snow.—EDWARD A. WRIGHT, *Tickhill Castle, Bawtry, Yorkshire*.

DENDROBIUM HILLI.—Considering the effectiveness of this *Dendrobium*, it is surprising that it is not more frequently met with in collections of Orchids than it is. Several large plants of it are now in flower at Kew, some of them bearing from fifteen to twenty flower-spikes 12 in. or more in length, and thickly beset with creamy-yellow blossoms. Associated with other Orchids of different colours, this *Dendrobium* has a fine effect.—S.

The Royal Horticultural Society and Guinea Fellowships.—You have favoured me with space to advocate Guinea Fellowships when the Society is free; will you let me answer many inquiries as to what is best to be done now that the Society has offered Guinea Memberships without a vote? I would advise would-be Guinea Fellows to hold themselves in reserve for the present. They have agreed to be Guinea Fellows if accepted when the Society is free; the Society is not yet free, and Fellowships are not yet offered. I have sent in a proposal to the President which would, I think, fairly meet the present circumstances; immediately on receiving the Council's decision I will make it known.—GEORGE F. WILSON, *Heatherbank, Weybridge Heath*.

OBITUARY.

WITH great regret we have to announce the death of Mr. H. Ormson, the well-known horticultural builder, of Chelsea, which took place on the 20th inst. at Fern Bank, Ventnor. Mr. Ormson built many of the best garden structures in the country, and took pride in securing grace of design as well as the best materials for his work. He possessed much energy and manliness of character, and though ill health for some years has prevented him from paying much attention to his work, his loss will be felt by many. It is to be hoped that such an extensive and well-organized business will be continued by competent persons.

NOTES AND QUESTIONS—VARIOUS.

Vitality of Peas.—A gentleman living in this neighbourhood had presented to him last year by a friend three Peas, which had been found in the closed hand of a mummy in the pyramids of Egypt, and are supposed to have been there 1900 years. He sowed these Peas last spring at the usual time, and they all three germinated and grew, bore lilac blossoms, and fruited.—C. L. H., *Mooctesfield*.

Anemones at Christmas.—I want to get Anemones to flower at Christmas time; when should the seed be sown? I believe that a brilliant display may be had at Christmas by sowing seed at the proper time in the open air, growing the plants on and potting them up late in the autumn and placing them in cold frames.—A. Z.

Ripe Wood Strawberries.—Perfectly ripe fruits of the wild wood Strawberry have been sent us by Mr. Alfred Heath, of Ebury Street, Eaton Square, gathered, he informs us, a few days ago, from a hedge-row near Hadlow, in Kent.

Chrysanthemum ancistatum.—This is a remarkably curious succulent plant which assumes almost a ligneous character when grown out-of-doors. It is perfectly hardy, and looks not unlike delicate masses of green coral. What may be taken for leaves appear to be fleshy hooks (*ancia*), which being thickly placed on the dichotomous branches, give them a strange, yet pleasing appearance. It is invaluable as a rock plant, thriving luxuriantly even on the highest, and most exposed peaks, where scarcely a Lichen would live.—THOS. WILLIAMSTON, *Ormskirk*.

Gold-laced Polyanthes.—Purchasers of these should take care that the plants which they receive are what they are represented to be. Only a short time since I was recommended to apply in a certain quarter for named Polyanthes; I did so, and I received the following reply:—"I have just sent 100 to Mr. So-and-so, and 50 to Mr. So-and-so," naming two well-known florists, "and what you want shall be sent shortly." I instituted inquiries, and they resulted in my countermanning the order. All the growers of Gold-laced Polyanthes for exhibition purposes inform me that they are very scarce indeed, and it is disappointing to get seedlings palmed off as named varieties.—D.

Trees in London.—Two of the South London parishes have set an excellent example to local authorities by planting trees in the wider thoroughfares. The vestry of St. George the Martyr have just planted two rows of Planes along the entire length of the Borough Road and St. George's Circus, and that of St. Mary, Newington, yesterday commenced the planting of the Kennington Park Road with Planes and Chestnuts alternately. This season the New Kent Road is to be planted.

Swans and Water Weeds.—I had by some accident the American Water Weed (*Anacharis alinastrum*) introduced into my sheet of water, and it threatened to fill it in two years, but I put a pair of swans in, and in one season they cleared it out; and I know that the same happened at the Royal Botanic Gardens, Regent's Park; the swans got rid of the *Anacharis* in a very short time.—P. SQTAEZ, *Busmead Manor*.

The Wood Pavement in Piccadilly.—This in portions is being already lifted to be re-laid, London will be tired of wood pavements before many years go by.

Mistletoe.—Owing to want of space some correspondence on this and other subjects must be kept over till next week.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES OF THE WEEK.

CROCUS-GROWING IN LONDON.—For the last month I have had hundreds of Crocuses in flower on some leads at the back of my house. Many are planted in boxes in a light soil, and they flower admirably. Seven or eight large blooms to one bulb are not an uncommon number. I have found many flowers of good colour and fine texture measuring 2½ in. by 2 in. when the flower was partially open. The form of the flowers is good, and each lasts for several days; those I grow in pots usually last more than a fortnight, care being taken to remove them from the sitting-room to a cool-house at night. They are placed to flower upon a shelf protected by glass from the heavy rains and from smoke (of which latter I have more than my share), by a piece of Nottingham netting, which London flower-growers will find a most valuable method of protection. I have never seen anywhere finer Crocuses than those I have grown in this way after year. I believe it important to have the soil more light and porous than is necessary to grow well the same plant in the country. Cocoa-nut fibre refuse is upon the whole as useful as peat, and it is more easily procured in small quantities at a cheap rate (3d. or 4d. a bushel); one-third of the latter to two-thirds of ordinary mould with a little silver sand answers well. I keep my spring bulbs in a damp cellar, the temperature of which has been from 48° to 50° (a few degrees higher than is desirable) all this winter, until they are well forward and the flower-buds showing; they are then kept where there is very little light for five or six days and brought into a greenhouse, or placed upon the shelf before-mentioned to flower.—L. S. B.

ROTTEN ROW.—This has been the scene of a good deal of work during the winter, and its present condition is not without interest to persons employed in drive-making. Recently the deep bed of gravel with which it was covered has become a series of bogs disagreeable to riders. They originated as follows:—In the winter a thorough re-making of the "Row" was carried out, and the usual rubbish laid down to the depth of 18 in. This was thoroughly rolled with a steam roller till the surface was as hard and as impervious as cement. This would have been well enough if the water could have escaped to the side or could have escaped in any way. It was prevented, however, by the deep bed of soft gravel laid down over the hard-rolled rubbish to make the ride all that is desirable for horses. Where this deep bed of gravel is needed, it is necessary to have the underlayers quite pervious to water. There seems now no remedy that can be applied during the season except taking off the bed of gravel saturated to the consistence of liquid mortar, and replacing it with an inch or so of dry gravel laid on the hard-rolled surface.

TULIPA GREIGI IN LONDON.—Many of the best Tulips grow exceedingly well amid smoke, but *Tulipa Greigi* surpasses all that I have tried in its healthy appearance, perfection of form, uniform brightness of colour, and large size of the flower, each petal measuring 2½ in. by 1½ in. Three bulbs were planted in November, and one of them was out in flower in a cool greenhouse on February 16. Day after day the plant was brought into the warm sitting-room, where the flower opened and displayed the beautiful dark blotches at the base of each petal and sepal, the very regularly arranged short sepals, and triangular stigma. The flower has a delicate perfume, somewhat resembling that of Apricots. After having been well out for sixteen days, the petals are only now (March 4) just beginning to show signs of fading at the tip. This is one of the most satisfactory of the spring flowers I have yet grown. The leaves are spotted with brown and are arranged in very beautiful curves. At present the bulbs are expensive, but in a few years they will probably be obtainable at a moderate price.—L. S. B.

CULTURE OF IRIS RETICULATA.—In answer to "H. M." (see p. 181), I trust you will allow me to say a few words in favour of that gem of all spring flowers, the *Iris reticulata*. My experience is not only that the blooms are of long duration, but that the bulbs rapidly increase. At the present time I have flowers of it and its earlier though not so beautiful ally, *I. reticulata Krelagei*, that have been out for more than ten days, and some cut blooms that have been in water three days and are quite fresh now. As a proof of their rapid increase, bulbs that with me last year sent up one flower are now giving me three or four. I grow both under glass and in the open border without protection, in all kinds of soil; but the flowers

are finer, and last longer because the stem is stronger, in good meadow loam than in any other material. Those that have flowered in pots or jardiniers, I plunge in the open border in a sheltered spot, and they have always succeeded well. I only trust I may be as fortunate with *I. Histrio*, which has not bloomed with me yet.—ED. FARRER, JUN., *Petygards Hall, Swaffham, Norfolk.*

— Let "H. M." grow his plants of *Iris reticulata* in good sandy loam well drained, out-of-doors, and he will have no occasion to complain any more of losing his bulbs nor of lack of increase. I have two beds 8 ft. long and 4 ft. wide covered with blooms, the bulbs being the produce of some two dozen which I purchased four or five years ago.—A. R.

FAIRY ROSES.—Some thousands of these are now in flower in Mr. Maller's Nursery at Tottenham, where they form little pyramids, thickly studded with buds and small bright rose-coloured blossoms. They are grown in 48-sized pots, in good rich loam; and for small vases, window sills, and similar positions, plants grown and flowered as these are have few equals.

TREES IN WEST END PARKS.—A fine line of young Planes has been planted on the inner side of the drive in Hyde Park, and at distances to allow of a fair development of the trees. The long overcrowded trees by Piccadilly are being relieved by the removal of the Elms: this is as it should be, though the improvement has been too long deferred. The trees near the "Row" will soon require careful attention.

FORCED PEONIES.—Forced plants of the Moutan or tree Peony are now finely in bloom in the conservatory at Pine-apple Place, where their large bluish-coloured flowers have a fine effect. Plants of these for forcing are lifted from the open ground in autumn and potted, and placed in cool pits, where they are brought gradually on until the bloom buds become prominent, when a slightly warmer temperature is afforded them. Peonies will not submit to rapid forcing, but when brought into flower in February they are very valuable both in the form of plants and in a cut state for large vases. Outdoor plants will probably be useless for purposes of decoration this season if we have a continuance of severe frosts.—S. W.

A PRETTY GROUP.—We have had for some weeks past a charming little group in the stove that has pleased all who have seen it. It consisted of three kinds of plants only, viz., four good examples of that lovely Orchid, *Calanthe vestita*, as many of that no less interesting Fern, *Adiantum Farleyense*, and a few potsful of that useful winter-flowering plant, *Euphorbia jacquiniiflora*—each of the latter being from 16 in. to 20 in. high. Than these, few plants could form a better combination at this time of year, aye, or at any other season. If I were asked to add one other plant, it would be *Eranthemum pulchellum*, but with me it has just come in too late; nevertheless little plants of it would doubtless augment the beauty of the other three.—J. TAYLOR, *Hardwicke Grange.*

A NEW FLOWER MARKET IN PARIS.—To the already well-known flower markets of Paris, that, made since the war, against the new Hotel Dieu is an important addition. It is well worth the attention of all interested in city markets, from its simplicity of plan and fitness for the end in view. Beneath a young and healthy plantation of Paulownia trees are arranged neat, permanent stands with cast iron supports and zinc roofs; the paths and roads between are of asphalt and perfectly clean. In spring and summer, when the weather will permit, quantities of flowers are exposed in the uncovered spaces, and the roads and quays near are on market days covered with whole nurseries of plants, shrubs, and young trees. As the market is a large and very well supplied one, it need scarcely be said the scene is a pleasant one on market mornings. When it is over, the market place forms a desirable open space kept in perfect order, and as it is cooled in summer by the shade of the large leaves of the Paulownia, it is probably as useful to the surrounding inhabitants as a square would be.—V.

CYCLAMENS AS WINDOW PLANTS.—One of the finest *Cyclamens* which I have seen for long time is now growing in a farmer's window near this place. The window faces the south, and the room is one in daily use by the occupiers of the house. The plant in question has over forty large, fully-developed flowers on it of a beautiful pale rose colour, and when seen by lamplight, they have a striking effect, associated as they are with large finely-mottled foliage. The flowers are borne on stout footstalks, which are nearly all of one length, forming quite a mass of bloom. The plant is two years old from seed, and is growing in a 6-in. pot in a mixture of two parts sandy loam and one part each of peat and leaf-soil. It gets copious supplies of rain-water when required, and the leaves are occasionally sponged to prevent their pores from getting choked with dust. After it has done blooming, it is gradually allowed to rest; during the early

summer months it is placed out-of-doors in a shady situation, then re-potted, and brought indoors again as soon as it shows symptoms of growth.—H. J. C., *Grimston*.

PARMA VIOLETS IN PARIS.—Among the spring flowers in the Paris markets Parma or Neapolitan Violets are remarkable for being twice the size they are with us. They are sent to the markets in large pots almost covered with large flowers and with numerous unopened buds. They seem, however, to be placed in these pots but a short time. They are also sent to the markets in great quantities in a cut state. When well done, as they are here, they seem by far the best of all the Violets.—V.

MASDEVALLIA IGNEA.—A comparatively small plant of this Masdevallia, in one of the Orchid-houses in Messrs. Veitch's nursery at Chelsea, is now bearing from twenty to twenty-five flowers, the bright orange-scarlet of which is strikingly effective. If other varieties of Masdevallia could be induced to become as floriferous as this, they would doubtless be more extensively grown in private establishments than they now are.—S.

THE NEW STREET IN THE TUILERIES GARDENS.—The works for the construction of this have just begun, and in response to the wail of some newspapers about this so-called "violation" of the gardens, we may state that it is being made alongside the face of the palace, and that it will therefore "cut up" the garden in no serious degree. It will, in fact, merely replace one of those saharas of gravel which the designers of such gardens thought well to inflict upon us, and the area of which in the Tuileries gardens might be reduced with great advantage.—V.

SANTIFRAGA OPPOSITIFOLIA and its varieties are now in full flower in the York Nurseries, where special attention is paid to selecting and propagating such little gems from the best types. Of the variety of *S. oppositifolia* called *pyrenaica*, sometimes named *maxima*, I measured one of the flowers, and found it to be fully 1 in. in diameter. The petals individually, too, are broad, and overlap each other, rendering the flowers solid and circular. The colour is a soft, but bright and pleasing, shade of rose. Another good variety of *S. oppositifolia* is *splendens*, the flowers of which are almost crimson, and are produced in great abundance.—R. P.

RHODANTHE MANGLESII IN POTS.—This pretty Everlasting is not nearly so often grown in pots for conservatory or room decoration as it might be. Mr. Maller, of Tottenham, who devotes much time and space to its culture, grows it in this way in quantity for market. Seeds of it are sown in succession from early in February to the end of March in shallow wooden boxes, which are placed in gentle heat until the young plants make their appearance, when they are at once removed into a cool house, and gradually inured to sun and air. When large enough to handle, they are pricked off five or six together in a 6 in. pot in light, rich soil, and by the beginning of May they form handsome, well-flowered, bushy plants covered with blossoms. Three kinds are grown, viz., *R. maculata*, *alba*, and *Manglesii*. The sale of these Everlastings during the summer from this establishment alone varies from 10,000 to 15,000.—S.

PHALANOPSIS AT CLAPTON.—The Phalanopsis house in the Clapton Nursery is just now very attractive, the central stages and side benches being literally paved with baskets, each containing a healthy plant of Phalanopsis, nearly all of which are bearing at least one spike of rosy or white butterfly-like flowers; at a moderate calculation there are at least 1000 spikes, bearing in the aggregate some 5000 blossoms. The only other conspicuous occupant of the house is a specimen of the broad-lipped, golden *Oncidium varicosum*. A mean temperature of 60°, and abundance of air, light, and moisture are the main points observed by Mr. Low in the culture of these plants, the high state of luxuriance of which fully attests the soundness of the cultural conditions to which they are subjected. Among them we noticed some distinct and handsome forms of *P. amabilis* and *P. Schilleriana*, while a few of the specimens very closely resemble *P. Portei* or *P. Brymeriana* in habit; indeed, the last-named plant was a foundling obtained by Mr. Brymer in mistake, I believe, for *P. Schilleriana*.—B.

THE LATE MR. WILKINS' ORCHIDS.—The collection of Orchids formed at Leyton by the late Mr. F. G. Wilkins, was sold the other day at Stevens', and on the whole realised good prices, the more remarkable of which are as follows:—*O. longoglossum vexillarium*, 42 guineas; smaller plants of the same, 23 guineas; *O. Phalanopsis*, 29 guineas; *Laelia elegans Turneri*, 36 guineas; and other lots from 5 to 15 guineas, the total amount of the sale being between £1300 and £1400.

INTERNATIONAL POTATO SHOW.—The Potato Exhibition, which has hitherto taken place at the Alexandria Palace, will this year be held in the Royal Aquarium, Westminster, on the 3rd of October, and not in the gardens of the Royal Horticultural Society at South Kensington, as has been reported.

PINKS SUITABLE FOR FORCING.

THESE are most useful for furnishing flowers early in spring, and, indeed, in the case of some of the most precocious among them as early as Christmas. This section of Pinks is not as yet a very large one, but all the varieties belonging to it possess the merit of being most useful and well diversified both in character and colour. They consist of the old Anne Boleyn, yet a good, useful variety; the Paddington Pink, deep purple and white, and Rubens, dark purple, a variety of a dwarf and free habit. These have been in the possession of florists for many years, but they have been supplemented by improved varieties raised by Messrs. Clark, Lee, and Gibbons. Mr. Clark has raised several, but his productions are best represented by his two latest, namely, Lord Lyon and Derby Day. Lord Lyon is a very fine, free-growing and flowering variety; the flowers large, full, and of a deep, rosy-purple colour, and very distinct. Derby Day is a large, full flower, the ground colour deep pink, heavily laced with bright red, vigorous in growth, and of a free habit. Lee's coccinea is a bright scarlet—the colour being a great acquisition in forcing Pinks; the flowers are large and full, the habit dwarf and vigorous. This variety forces very well, and at the Royal Nursery, Slough, it can be seen in early spring in admirable condition. The plants scarcely get beyond 1 ft. in height, and they flower with great freedom. Lady Blanche Gibbons is a fine, pure white Pink, of good size, free habit, and it has the good property of not bursting, a great defect with some Pinks. It is valuable for bouquets, being very fragrant. Mr. Pettifer is a dwarf-growing, free-blooming Pink, the centre of the flowers of which is dark, broadly edged with white, and it is most useful for cutting from. He who would bloom forcing Pinks well in early spring, should have them well established in pots early in autumn. The size of pot must be regulated by that of the plant, but a 32-sized pot will be quite large enough for the strongest plants. It is not well to give them too much root-room; at Slough it will be found that the majority of the plants are in 48-sized pots. The soil used should be a good yellow loam, leaf-mould, manure, and a little sand. When the plants are potted early in autumn, they should be put in a cold frame, and kept there until well established. When the time comes for getting them into bloom, say in the early part of February, they should be put in quite a moderate temperature, and brought on gradually; for should they be placed in too great a heat, the plants will get drawn and produce weak flowers. They should be kept near the glass, and as they begin to throw up their flower-stems, a little weak manure-water should be given twice a week. Pinks of this kind are propagated by means of cuttings or pipings, much in the same way as those of ordinary florists' Pinks, but the operation should be performed much earlier in the season. The rule is to propagate as soon as pipings can be obtained, and it is obvious that the sooner this is done the stronger will be the plants by-and-by. Cuttings require a sandy soil, and should be struck on a gentle bottom-heat, when they soon emit roots; they should then be potted singly in small 60-sized pots, gradually hardened off, and finally planted out in the open ground for the summer in a well-prepared bed. They should be well looked after and kept growing, and when potting time has arrived, they may be lifted and potted for flowering in spring. During winter the plants are apt to become infested with green fly, which is easily destroyed by dipping the plants in Fowler's Gardeners' Insecticide, mixed as directed by the makers. All decaying leaves should be removed by means of a pair of scissors, as they sometimes communicate decay to the stems of the plants.

D.

Seedling Phloxes.—My dwarf Phloxes were raised from self-fertilized flowers of one I have as *P. frondosa* and *P. Nelsoni*, the latter a seedling raised many years ago by my late father from seed of *P. frondosa*, supposed to be naturally crossed by one then grown as *P. nivalis*, a kind I believe lost to the country for some years, but re-introduced from America by Messrs. E. G. Henderson & Son, and now sold by them as *P. subnata* *alba*. I saw it in bloom there last year, and at once recognized my old friend for which I had been looking many years, and had more than once had *P. Nelsoni* sent in substitution for it.—J. G. NELSON, *Aldborough Rectory, Norwich*.

THE FLOWER GARDEN.

HARDY FERNERIES.

WHILE flowers are indispensable for the ornamentation of a villa residence, a collection of hardy Ferns forms an equally important addition, and when properly and tastefully arranged they may be made to assume as natural an appearance as they do in a wild state; the rustic appearance, too, of a hardy Fernery forms an agreeable contrast to the more dressy portions of the grounds. It is difficult to lay down definite rules for the construction of a Fernery, so much depending upon the position which it is to occupy, and the space at command. In fixing on the site, the first thing to be aimed at should be a shady, secluded nook—not one that can be seen from the windows of the mansion or cottage, nor yet from the flower garden, but a part that is unexpectedly come upon when walking through the grounds. The situation should also be one that is sheltered from boisterous winds. Moisture, too, is essential to the well-being of hardy Ferns, but this cannot always be given in sufficient quantity to carry them safely through hot summers. In forming a Fernery, some object to tree roots, because they breed fungi, but I never found any inconvenience in that way from their use. Anything like straight lines must be avoided. If the space to be occupied be long rather than broad, it should be broken up here and there so as to form miniature dells, recesses, and projections, but all should have as rustic an appearance as possible. The plants in all cases should be allowed sufficient space in which to develop themselves. Where out-door Ferns have failed to do well, the Ferneries have generally been cramped for room. What is wanted is breadth and length, height being of secondary importance. If the Fernery be so arranged that it could be traversed by a narrow path from which the plants could be examined, all the better. The stones and roots employed should be placed in as natural a manner as possible, and yet they should possess a certain amount of artistic arrangement. Any one who has searched for Ferns in their native haunts cannot have failed to observe that they luxuriate in a light, sandy soil, and this must form, if possible, the main bulk of the Fernery. I have, however, many times used Cocoa-nut fibre mixed with turfy loam, and it has always appeared to answer admirably. For very delicate sorts a compost may be formed of peat, leaf-mould, and loam, with a sprinkling of silver sand to keep all open and porous, but the stronger sorts, as has been stated, will succeed best in loam without the addition of peat. When we use Cocoa-nut fibre we find that it retains a considerable amount of moisture without soddening. Fern roots being generally of a wiry nature will grow in almost any soil that is of ordinary texture, but it ought not to be heavy. Ferns dislike manure, both in a solid and liquid form. In arranging the plants I would not separate the evergreen from the deciduous kinds, but so dispose of them that when the foliage of the latter dies down in the beginning of winter, there would still remain plants enough to interest the cultivator. I would therefore plant plenty of sorts that would retain their verdure throughout the winter, such, for instance, as the *Blechnums*, *Scelopendriums*, *Polystichums*, and *Poly-podiums*. In planting, an error of too common occurrence must be avoided, viz., that of planting too deeply. Generally speaking, the crowns must be kept well above the soil, but they should be made firm, and the stronger-growing sorts should be planted first. Dwarf-growing varieties with fine

fronds should have the most sheltered nooks assigned to them. If water exist in the Fernery, a place must be afforded for the Royal Fern (*Osmanda regalis*). A list of hardy Ferns would perhaps be out of place, inasmuch as cultivators have their own particular favourites. I may, however, just add that a small Fernery may be constructed in any shady corner where flowering plants will not succeed, and if arranged according to good taste and judgment, it will always be a source of enjoyment to the cultivator. R.

EARLY WHITE SAXIFRAGE.

(*SAXIFRAGA BURSERIANA*).

ALL Saxifrages are beautiful, either as regards leafage or bloom, but none even of the conspicuous flowering kinds surpass this in vernal beauty. The plant is of dwarf, indeed, almost Moss-like habit, forming broad patches and spreading rapidly over the earthy interstices of warm, moist, sandstone rock-work if planted where it does not suffer from stagnant moisture. The accompanying engraving was made some twelve months ago from a plant in Mr. Ware's collection at Tottenham; it represents a small tuft in flower, but the blossoms are fully one-third larger than those shown in the sketch. They are borne singly on slender red stalks, which rise 2 in. or 3 in. above the general surface of the plant and are pure white, the



Saxifraga Burseriana.

margins of the overlapping petals being elegantly frilled or crisped as shown in the illustration. Interspersed among the fully expanded flowers the unopened buds (which are of a dullish crimson-brown colour) show themselves to excellent advantage, and enhance the pearly whiteness of the petals. Of all Alpine Saxifrages this merits the most attention, inasmuch as it is so markedly distinct from all its congeners, and its flowers are of sufficient size to render it a showy addition to spring-flowering, hardy plants. It may be successfully cultivated in a pan containing fibrous loam and sandstone, or coarse sand-

stone grit, a few nodules of sandstone being laid on the surface of the pan or pot among which the young growth and rootlets delight to creep in search of moisture. B.

SUMMER FLOWER GARDENING.

THE GARDEN, from the first number to the present one, has bestowed but faint praise upon the now fashionable style of summer flower garden embellishment, hardy or all the year round plants being, according to it, best for out-door decoration; but, whilst acquiescing in this, we cannot shut our eyes to the fact that summer flower gardening is still as popular as ever it was, but every year more or less improved—a result in no small degree due to the influence which THE GARDEN has had on such matters. I have a great affection for hardy plants, but at the same time I must confess that I have a liking for summer bedding in all its phases, and as the season for the preparation of plants for next summer's display is at hand, the present is a suitable time for a few notes on the subject. There are what may be termed four different styles of summer gardening, viz., the bright or colour massing and grouping, for which purpose *Pelargoniums*, *Lobelias*, and *Calceolarias* are mainly used; next the carpet, or formal dwarf-plant style, in which are mainly used such plants as *Alternantheras*, *Pyrethrum Golden Feather*, *Coleus*, &c.; next the quaint and neutral colour style, in which succulents of various types reign supreme; and, lastly, the sub-tropical style,

in which plants of noble growth and graceful foliage play the chief part. To my mind, a mixture of the four classes, skilfully worked out in conformity to the surrounding architecture, landscape scenery, and ground formation, is the beau ideal of flower gardening. For instance, what could be more appropriate, or more in character, for a geometrical terrace garden, with all its stone edgings, vases, and statuary, than the now fashionable carpet embroidery or succulent bedding? Granted that the system, in some of its aspects, is unnatural and should be discouraged, yet, be it remembered, that such gardens exist, and have been laid out and furnished at enormous cost with statuary, &c., and that their owners will not think of demolishing the same, but require them to be planted to the best advantage, and no better mode of doing so than that just mentioned has yet been put into practice; and till all stonework gardening is abolished, the formal style of planting must and will continue. Even the greatest admirer of natural gardening would, I think, admit that herbaceous and other hardy-flowering plants would be out of place where dressiness must be maintained at any cost, and flowers or bright foliage are looked for throughout the summer. It is, I know, possible to plant a formal garden in such a manner that the severest critic could not complain of excessive formality, for after all it is the abuse of carpet bedding that has brought it into disrepute in some quarters; and justly so, for when one sees bed after bed and arrangement after arrangement repeated without end, with no plants to break or relieve the monotony of flat surfaces, one has good reason to protest against the system. I have charge of a terrace garden—certainly not of the severest geometrical type—which has to be planted with the view of obtaining the best display from June to November, and therefore I am compelled to adopt the carpet bedding system; but I supplement it by dotting over the surface of necessarily formal arrangements plants of noble or graceful aspect, such as *Acacia lophantha*, *Dracæna indivisa*, *D. australis*, *Grevillea robusta*, *Yucca recurva*, and others. For formal succulent arrangements, "dot" plants of similar kinds are best suited, such as *Sempervivum arboreum*, *S. arboreum variegatum*, *S. phyllioides*, *Agave americana variegata*, and *Yucca gloriosa*. In such arrangements a judicious blending of beds of flowering plants, principally *Pelargoniums*, adds brightness to the whole, but on no account should succulents and flowers be planted in the same bed, or even fine-foliaged and flowering plants, save under exceptional circumstances. The colour-massing or grouping style of summer gardening is best adapted to a terrace or parterre that is well backed up or surrounded by evergreens, as these afford relief from the glare of brilliant colours, and at the same time set them off to advantage. In arranging such gardens the point to be kept in view beyond all others is so to dispose the colours that no uneven balance shall be discernible, and also to guard as much as possible against gaudiness by using a preponderance of quiet tints such as pink, white, and blue, colours of which the eye never tires. A few plants of noble aspect, distributed at regular distances apart over the entire garden, and especially in beds of glaring colours, will be found to enhance the beauty of the whole. *Retinosporas*, standard variegated *Euonymus*, *Thuja aurea*, and several varieties of *Yuccas*, are all suitable plants for this purpose. My view of sub-tropical gardening is that it is only suitable for positions where it can be associated with water, or for sheltered nooks and dells where the force of the wind is broken before it comes in contact with the plants, otherwise the first squall will so injure them as to make them objectionable for the remainder of the season. Where, however, such positions are not at command, the hardier class of noble or handsome-foliaged plants should be selected, many of which may be permanently planted, such as *Ailantus glandulosa*, *Rhus glabra*, *Phormium tenax*, *Arundo conspicua*, *Salisburia adiantifolia*, the *Yuccas*, and the hardy Palm (*Chamærops humilis*). Of half-hardy plants that will withstand wind, there are numbers, such as *Araucaria excelsa* and *A. Bidwilli*, *Acacia lophantha*, *Ficus elastica*, *Cycas revoluta*, *Dracæna indivisa*, *Aralia japonica*, and others. The *Abutilons*, *Ricinus*, *Solanums*, *Wigandias*, and *Ferdinandas* are soon torn with the wind; but nevertheless, they rank amongst the most effective of all plants where sheltered positions can be afforded them. In planting

sub-tropical plants, care should be taken to guard against the beds having what may be termed a "bunchy" appearance when fully furnished. To avoid this, plant thinly, and supplement by planting as undergrowth dwarfier plants, of which there are many suitable kinds, some of the best being *Gnaphalium lanatum*, *Cineraria maritima*, *Pyrethrum Golden Feather*, *Coleus* and *Iresine*. *Mignonette*, *Periwinkles*, and the stronger-growing *Sedums* and *Saxifrages* might also be used in this way.

W. W. H.

LILY BULBS.

"DUNEDIN" has not assisted us so much on this subject as at first sight he appears to have done. The theory of the "seed-bud" applies to one section of Lilies only, and is exactly what I had in view, and indeed recorded in my first paper in THE GARDEN (see p. 115) in these words:—"It may be safely said that no Lily bulb blooms twice from the same centre, and although most of the Japan Lilies seem to produce flower-stems from the same bulb (on closer examination we find that the flower-stalks spring from new buds formed within the old bulb every season), they are in fact new bulbs formed within the parent one every season, but remain attached to the same base, drawing in part substance from the surrounding scales," which I may here remark do not necessarily perish, since in many Lilies, and especially in *L. davuricum*, they become detached from the base of the old flower-stems, and form a whole colony of young bulbs. The term "seed-bud" used by "Dunedin" is an old one, and is calculated to mislead, inasmuch as the mode of reproduction which he mentions has nothing to do with the seed whatever, and is simply an axillary or scale-bud, popularly known by cultivators as an "offset." That these are truly axillary or leaf-buds is amply proved by their being produced on the leafy aboveground stems in the case of *L. bulbiferum*, and on the underground stems or stolons in that of *L. neilgherrense*. Of course physiologists are aware that even true seeds or "seed-buds" proper are marginal leaf-buds, but they are produced sexually, and not vegetatively and axillary, as is the case in the matter of Lily offsets. The constant reproductive process by axillary buds as described by your correspondent is just as applicable to all the bulbous plants with which I am acquainted as to Lilies. I should certainly date the origin of a Lily bulb from seed, and not from axillary or scale buds; and as to the question whether the Lily is an annual or perennial, that is self-apparent, inasmuch as a bulb of the old orange Lily once well planted will have increased some 50 per cent. in two or three years. There are one or two points about Lily bulbs on which I am by no means clear, and I trust that "Dunedin" may be able to render us some assistance. For example, I had always been led to believe that growth might take place without leaves, but that this was at the expense of substance, or cells previously stored up in the plant; we have, however, what appears to be trustworthy proof that Lilies not only become larger in the bulb, but also more weighty without the assistance of the leaves. More information on this point is desirable. Again, the three or four-fold jointing of the scales of some Lily bulbs yet awaits explanation. Again, there is an inherent vigour and hardihood in some Lilies from the same countries which others do not possess. Take the Japanese *L. speciosum*, for example: it always does well out-of-doors in our gardens, while *L. auratum* nearly as invariably dies during the second or third year, although the bulbs of both have been subjected to the same vicissitudes as regards importation, and been grown side by side in the same soil. These questions, and many others are well worth attention by those who take an interest in such matters, inasmuch as they are of great importance to Lily growers. Do Lilies raised from seed in this country grow and flower more constantly than imported bulbs, or do they, too, die out?—F. W. B.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Lily Bulbs.—"Dunedin" (see p. 175) has in *L. giganteum* an instance where a Lily bulb unmistakably dies after flowering and producing small side bulbs; in some of the North American Lilies, too, it can only be the young bulbs which flower.—G. F. WILSON, *Heatherbank, Weybridge Heath.*

Hardy Aquatic Plants.—I have a pool of water in my garden which in the present state is rather unsightly. Can you recommend me anything to plant that would grow in stagnant water?—SUSSENER. [The most ornamental of our native marsh plants might with advantage be naturalised in or around your pool; those best suited for your purpose would probably be *Iris pseudo-acorus*, *Eutomis umbellata*, white and yellow Water Lilies, Water Crowfoots, *Sagittaria sagittifolia* and its varieties; and to these might be added such exotic plants as *Talia ethiopia*, *Apocynon distachyon*, and *Gunnera scabra*, the last on the bank; if your climate be mild and genial, these will give satisfaction. It will be best to avoid planting too thickly at first, half-a-dozen good aquatic plants well planted will give greater pleasure than an intermingled mass without individuality.]

NEW PLANTS.

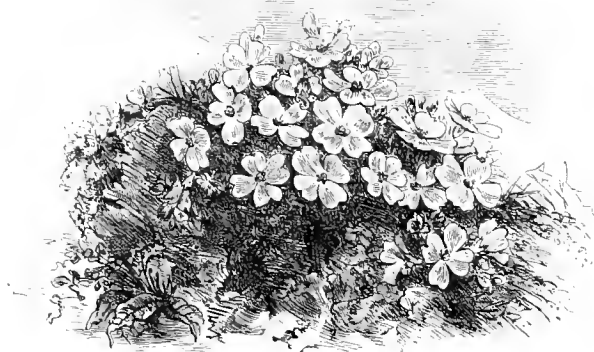
Turraea obtusifolia.—This pretty little shrub is a native of Southern Africa, its limits extending from Albany to Natal, apparently most common near the latter place. It is a plant which has often been collected; the living plants now at Kew, however, were raised from seeds sent by Mr. H. Hutton, of Graaefinet, in 1872, and flowered in 1876, after they had attained a height of from 4 ft.



Turraea obtusifolia.

to 6 ft. The above illustration presents a small flowering spray, and a coloured figure of it is given in the "Botanical Magazine," t. 6267. The flowers are pure white, and if durable, as we believe they are, they will be desirable for bouquet work. The plant grows well in a light, open, peaty compost, and a warm greenhouse temperature suits it best.

Draba Mawi is a native of Pancorbo in Old Castile, between Burgos and Miranda, where it was discovered by Mr. Maw in 1870, and introduced into his garden at Broseley and into the Royal Gardens



Draba Mawi.

at Kew. It flowered in the spring of 1873, and the fruit ripened for the first time in May, 1874. It is an excellent rock plant, of compact habit, bright green foliage, and red-brown buds, that are succeeded by crowded pearly flowers. It is figured in the "Botanical Magazine," t. 6186, where Dr. Hooker remarks, "It is not without hesitation that I propose as new a European species of the large and very variable genus *Draba*, but after a very careful examination and comparison I am unable to match the plant here figured with any known to me by specimen or description. It belongs to the section *Aizopsis*, and its nearest affinity is with the Spanish *D. cantabrica*, Willkomm (? *D. Dedeana*, Boiss. and Reut.), which differs in the yellow petals and elongate fruiting raceme. It also resembles very closely, in habit especially, the *Draba hispanica*, Boiss., a native of

Spain and Algeria, but differs conspicuously in the white flowers, broad petals, flat pod, and very short style. It has also the habit, form of pod and style, and many of the characters of the *D. Zahlbruckneri*, Host, of the Eastern Alps; but that has small flowers and glabrous pods."

Telfairia occidentalis.—A curious West African plant, belonging to the Cucumber family, and bearing five-lobed leaves on scandent stems. The flowers, which are white and purple-eyed, measure 2 in. across the limb, and are elegantly fringed. The angular fruits are 2 ft. in length, of a glaucous colour without, and rich orange yellow within, the purplish seeds being embedded in the yellow pulp in three rows. The seeds are as large as those of Almonds, and are said to be almost as good in flavour.—"Botanical Magazine," t. 6272.

Masdevallia attenuata.—This is a dwarf-growing, white-flowered species from Costa Rica. It is one of Messrs. Veitch's introductions, and flowered at Kew in December, 1874. It is pretty but not showy.—"Botanical Magazine," t. 6273.

Livistona australis.—A stately Palm from eastern temperate Australia, where it attains a height of 30 ft. In a small state it is a useful decorative fan Palm.—"Botanical Magazine," t. 6274.

Xanthisma texanum.—A Coreopsis-like hardy annual composite, bearing yellow flowers 2 in. across, of no particular beauty.—"Botanical Magazine," t. 6275.

Drimiopsis Kirki.—A strong-growing, bulbous plant from Zanzibar, bearing strap-shaped leaves 1 ft. or more long and nearly 2 in. wide, of a deep green colour with dark blotches. The simple scapes are clothed for about one-third of their length with nearly sessile, white flowers. It flowered at Kew in July, 1873; of no great beauty.—"Botanical Magazine," t. 6276.

Bauhinia petiolata.—A smooth-leaved shrub, introduced from New Granada by Mr. Linden, and which first flowered at Kew in 1862. Its white-petalled flowers are 3 in. in length and borne in short, racemose clusters at the extremities of the young growth. It is not likely to become popular as an ornamental plant.—"Botanical Magazine," t. 6277.

Oncidium cheiroporum.—A pretty little, winter-flowering Orchid from New Granada, now very popular in our gardens. It is of dwarf habit, having ovoid, one-leaved pseudo-bulbs, and slender, drooping panicles of odorless, yellow flowers. These panicles rarely exceed 1 ft. in length, the bright green foliage being still shorter.—"Botanical Magazine," t. 6278.

Cordia decandra.—A Chilean shrub first found by Macrae, when collector for the Royal Horticultural Society, in 1825. It is of easy culture, and bears bell-shaped, white flowers in clusters at the extremities of its slightly downy, leafy branches. It flowers during the spring months, and well deserves culture, as a warm greenhouse shrub.—"Botanical Magazine," t. 6279.

Tupistra macrostigma.—An Aspidistra-like plant, a native of the Khasia Mountains, bearing lance-shaped leaves on creeping rhizomes; nodding racemes of vivid purple, six-rayed, fleshy, flowers are produced by the young growths. May be useful as an evergreen fine-foliaged plant for pot culture, and decorative purposes.—"Botanical Magazine," t. 6280.

Cyananthus lobatus.—A perennial, herbaceous Bellflower, from the Sikkim Himalaya and Nepal, where it grows at an altitude of 10,000 ft. to 12,000 ft. The plant is of graceful habit, having pinnate foliage, the flowers being borne singly at the apices of the young growth. The flowers are 1 in. or more in diameter, and of a vivid Gentian-like blue colour, having a few whitish hairs in the throat of the bell-shaped corolla.—"Gartendora," t. 888.

Dracocephalum speciosum.—A bluish-purple Himalayan plant, much resembling the common white Dead Nettle in habit of growth. It was raised from Sikkim seeds by the Rev. Harpur Crewe, these seeds having been collected by H. J. Elwes, Esq. Not likely to be of any value as a decorative plant.—"Botanical Magazine," t. 6281.

Cypripedium Druryi.—A strong-growing Lady's Slipper, discovered in Mysore by Colonel H. Drury, in 1866, and exhibited by M. Linden, at Brussels, in April of last year. It has also flowered with Messrs. Veitch & Sons, and in the Kew collection. In habit it resembles *C. insigne*; the yellowish flowers are, however, smaller, the petals being very short, and the profuse spotting of *C. insigne* is here reduced to a dark purple band down the centre of each segment, and a few dots at the base of the petals. The scapes are shaggy like those of *C. villosum*. It is less ornamental than *C. insigne*.—"L'Illustration Horticole," pl. 265.

GARDENIAS PLANTED OUT.

As cut flowers for bridal and other bouquets, Gardenias are unsurpassed by any flower in cultivation, while for general indoor decoration the demand is invariably greater than the supply, both in private and public gardens, as their commercial value at all seasons will testify, and to meet the ever-increasing demand the system of planting out has of late come to be adopted with excellent results. I by no means would advise the total abolition of pot culture, as a portion of the stock might be advantageously so grown to meet special wants at particular or special occasions; but where great quantities of cut flowers are in request, a house or pit devoted to the culture of Gardenias planted out to grow into large bushes will be found a good investment. There is as much difference in the quantity of produce as there is between planted-out fruit trees and those grown in pots, while the amount of labour required shows a decided balance in favour of the abundant and more natural system of culture. Having a range of half-span hot-water pits erected here last spring for flower and early fruit forcing, with wide beds in front and narrow ones at back under the short lights, I resolved to devote the back beds of the hottest and the coolest divisions entirely to Gardenias, so as to prolong the season of flowering as much as possible. After putting in a good depth of potsherds for drainage, a layer of turf was placed over them, and I filled up with a compost of fibry turf, peat, charcoal, and thoroughly decayed mortar-rubbish in quite a rough state; in this good strong plants of *Gardenia florida* were planted, which produced a long succession of fine blooms, and made a most vigorous growth afterwards. It is now just a year since they were planted, and their general appearance is more like a plantation of hardy shrubs than one of Gardenias, and the branches bend under the weight of a load of pearly blooms and buds in various stages of development, the size of the blossoms being also in proportion to the size and substance of the foliage, and might easily be mistaken for white Camellias. Gardenias, like many other subjects, have suffered more from over-kindness and attention to orthodox rules as to temperature, soils, &c., than from lack of them. They enjoy a good brisk heat in the growing season, but are decidedly benefited by a cool regimen when the growth is perfected. And as to soil, they are such vigorous-rooting subjects that it must be a poor mixture indeed, if they will not grow in it; if compelled, however, to use but one description of soil, I should select turf from an old pasture stacked up long enough to kill the roots of the Grass. Peat is of such varied qualities that in many instances plants that are supposed to flourish best in it suffer from lack of nourishment, and when size and substance of produce are the objects, a liberal feeding ground for the roots is of the utmost importance. Soot-water acts both as a fertilizer and insect destroyer, and a top-dressing of good soil occasionally will be found very beneficial to the *Gardenia*, as it is an abundant and vigorous surface-rooting plant.

JAMES GROOM,

Henham.

The Double Poinsettia.—I have a plant of this, and should be glad to know the best way to grow and propagate it. It is now in a stove, where it has bloomed; it is well dried back, and has shed its leaves. Should it be kept in the stove until growth commences or not?—L. HANSON, *Halfpenny*. [Keep it comparatively dry until the end of April or beginning of May, then cut it down and strike the eyes singly in pots, as you would do Vine eyes, or allow the plant to break, and strike the young shoots.]

Two Good Wall Shrubs.—*Fremontia californica* is a fine plant for a south wall, bearing, as it does, large yellow flowers all the way up its growth. Another good wall plant, with a most deliciously scented flower, is *Chimonanthus fragrans*. It blooms in midwinter, is delightfully quaint, and perfectly hardy. I often wonder these two plants are not oftener met with than they are.—FRANK MILES, *Bingham*.

Sub-soiling with Dynamite.—An interesting experiment was, according to "Turf, Field, and Farm," recently tried with dynamite in Grape culture, which, from its complete success, is suggestive of still more wonderful uses for this explosive agent. In the case referred to, the dynamite was used in small proportions to loosen the earth and allow the admission of air and the free percolation of water to the roots of Vines. Holes were made in the soil about 10 ft. in depth, and at points where no roots of the Vines were likely to be injured. Cartridges of dynamite were introduced and exploded, and the result was that for the entire depth (10 ft.) the earth was made loose and friable; the ground, in short, was not only rendered in better condition than could have been effected by plough or harrow, but every phylloxera on the roots of the Vines was killed. The success attendant upon this experiment, though on a comparatively small scale, will undoubtedly lead to larger and more important undertakings.

HARDY FLOWERS IN LONDON GARDENS.

THE frosts which we experienced last week have played sad havoc with many flowers which have, owing to the exceptionally mild season which we have had, been blooming earlier than they naturally would have done in ordinary winters. Many, however, are still beautiful, and should a few fine days set in, the losses sustained by frost will soon be repaired. Crocuses and Snowdrops seem to be uninjured, and will be gay for a long time to come. The Scotch Crocus (*C. biflorus*) and its varieties appear to be the most continuous bloomers, inasmuch as they were the earliest this season, and they will in all probability be the latest. Some of the newer kinds of *Bulbocodium* are producing multitudes of showy flowers in Mr. Barr's grounds at Tooting, where also may be found in great beauty the soft, rosy-blossomed *Anemone coronaria*. The purple-flowered variety of *Iris reticulata* (*I. Krelagei*), is still in good condition, and established plants of *Anemone blanda*, growing on raised beds, are still in perfection, after having been in flower for nearly two months. A new and distinct Star of Bethlehem, sent from Asia Minor by Mr. Elwes, is also in blossom at Mr. Barr's; its flowers are produced in dense trusses close the ground, and are associated with long, thin, cord-like foliage; it has been in bloom ever since January last, and is still in tolerably good condition. The double and single red, blue, and white *Hepaticas* continue to be very showy, and the beds of *Scilla bifolia* are likewise still very attractive. At Messrs. Rollisson's *Aubrietia deltoidea grandiflora* is just opening its small lavender, Violet-like blooms, set on dense cushions of healthy green foliage. *Saxifraga oppositifolia pyrenaica*, too, is bearing numerous, bright pink blossoms: this is a very useful plant for forming edgings or for planting on rockwork; it flowers freely all through the spring, and forms a compact carpet of short and knotty stems the remainder of the year. *Ficaria grandiflora* and *F. ranunculoides*, in Mr. Parker's nursery at Tooting, are thickly set with large, glistening, golden-yellow blossoms; and in this nursery may also be found large plants of the window Candytuft (*Iberis semperflorens*), densely covered with pure white blossoms; associated with these may likewise be found a white-flowered variety of the great Strap-leaved Saxifrage (*S. ligulata alba*), throwing up large trusses of creamy-white flowers, which will be found valuable for cutting. The Spring Snowflake (*Leucojum vernum*) may also now be seen in great beauty in Parker's nursery, where its white, green-tipped Snowdrop-like blossoms are produced in great numbers. Here may also be found the Marsh Marigold (*Caltha palustris*), throwing up large, bright golden-yellow flowers from among abundance of green Ivy-like leaves. For planting near streams or ponds, or on piles of stones in damp situations, this is a very desirable plant, flowering, as it does, in such positions for several months during spring and early summer. The blue and white blossoms of Periwinkles now begin to sparkle on glossy-leaved stems that trail over dead roots or heaps of stones. The Satin-flower (*Sisyrinchium grandiflorum*) is also flowering freely in Mr. Ware's grounds at Tottenham, where many kinds of Narcissus are likewise at present exceedingly showy. *Triteleias* still continue to rank amongst the best of spring flowers; and Christmas Roses of different kinds are also in good condition.—In last week's GARDEN (see p. 165) *Dodecatheon Dens-canis* was inadvertently printed under one of the woodcuts instead of *Erythronium Dens-canis*.

Acanthus latifolius and mollis.—Seeds of these really beautiful *Acanthuses* sown now in gentle heat will furnish fine plants for sub-tropical gardens, and in addition to their outdoor summer attractions, they are well adapted for lifting for indoor decoration in winter. They will last in perfection indoors the whole winter in positions where more valuable but certainly not more effective plants would perish. The foliage of some that were not lifted last winter is still in good condition in open borders, but even if killed to the ground by severe frost, young leaves will again spring up. For amateurs who have but little glass these are invaluable either in or out-of-doors.—J. GROOM, *Henham*.

Laurustinuses.—These are very fine with us this season. I have one about 6 ft. high and 30 ft. in circumference entirely covered with bloom, presenting a magnificent sight; others are equally beautiful, though smaller.—J. ALLAN, *Ashurst Park, Kent*.



Grape Hyacinth
(*Muscari racemosum*).



Snowdrop (*Galanthus nivalis*)



Sky-blue Grape Hyacinth
(*Muscari botryoides*).



Marsh Marigold-leaved Pilewort
(*Ficaria verna*).



Spring Crocus (*C. vernus*).



Spring Star-flower
(*Triteleia uniflora*).



Garden Anemone
(*Anemone coronaria*).



Large-flowered Pansy
(*Viola tricolor* var.).



Heart-leaved Saxifrage
(*Saxifraga cordifolia*).

THE INDOOR GARDEN.

CALADIUMS AND THEIR CULTURE.

AMONG ornamental-foliaged stove plants, none are more beautiful or useful than Caladiums; indeed, so lovely are many of the newer varieties in the rich veining, brilliant colour, and grotesque markings of their leaves when fully brought out under good cultivation, that scarcely any artist could be found sufficiently skilful to depict them in all their glowing colours. Take *C. Belleynei* or *Prince Albert Edward*, the latter of which is a decided improvement on the former in many ways, and it will be admitted that nothing can surpass them in the delicacy and purity of the many shades of colour pervading the leaves, which, in the case of the latter are set off to greater advantage by the almost black massive stems on which they are supported. The great strength and stiffness of these give *Caladium Prince Albert Edward* a value beyond most of the others, in as much as it will flourish in a room, window, or greenhouse, and in many other positions where the weak, soft-stemmed kinds would at once give way and droop down. It is from this sturdy habit, coupled with its beauty and other good qualities, that I am inclined to place it first on my list, and to recommend it as one of the very best that can be grown for decorative purposes, and one that all should possess who have a stove or intermediate-house suitable for the growth of Caladiums. Next to this I would place *C. argyrites*: although this variety is in no way similar either in size, habit, or leaf-markings to the one just named, if I were only to grow two kinds my choice would fall on these, as they are more distinct than any other, and the latter is a perfect gem for table decoration, for which purpose nothing can be more suitable or better adapted in every way. The leaves of *C. argyrites*, as compared with the others, are of the most miniature description, and so is the habit and growth of the plant in every way, for when fully developed they rarely attain a height of more than 9 in., unless drawn up too much under shade, or subjected to an atmosphere so close and moist as to be unsuited to their well-being. There is something so chaste in the form and delicate marbling of the foliage of this that captivates all who see it, and those who are not so fortunate as to have made its acquaintance should lose no time in securing it or any other they may wish to have, now that the bulbs are dormant, in which condition they are much more portable and travel safer than at any other season. Another fine kind and a fit companion plant for *C. Prince Albert Edward* is *C. Dr. Lindley*, both of which associate well from their general habit and size so closely resembling each other, while they afford the most pleasing contrast, owing to the great dissimilarity of colour between them, a rich crimson predominating in the latter and white in the former, *Dr. Lindley* having the same kind of stiff *Alcacia*-like stems peculiar to these two varieties, which habit renders them so exceedingly valuable on account of their erect style of growth, a quality in which many others are sadly deficient. In selecting Caladiums, therefore, it is well to make choice of those that have the stiffest and stoutest foot-stalks as well as the handsomest leaves, an improvement in respect of which there has been considerable progress made within the last few years.

Among the newer kinds *C. Vesta* is remarkably handsome, having greenish-white veins that contrast strongly with the surrounding crimson colour, and this is banded again by the outer portion of the leaf being a lively green dotted with bright rose. *C. Princess Alexandra* is another distinct variety, having salmon-coloured leaves, with a conspicuous green mid-rib bordered with magenta-crimson, and the leaf margin bounded by a green belt with a most picturesque light pink chain running parallel through its centre. *C. Alfred Bleu* is likewise a very desirable kind, having rich green leaves, the centres of which are salmon-coloured, and the other portion dotted irregularly with pure white spots. Besides these there are many others almost equally good, but too numerous to particularize, all having some distinctive feature or peculiarity to commend them to the notice of lovers of this class of plants.

In addition to the stove varieties there is one of gigantic stature and size sufficiently hardy to stand in any greenhouse,

where, from its commanding aspect and the light green of its noble leaves, it courts admiration, and helps to break up that uniformity and sameness so common among the usual occupants of such structures. To use as single specimens in conservatories, halls, or corridors, during summer and autumn this *Caladium* (*C. esculentum*) has few equals, affording, as it does, a bold type of vegetation such as is required for furnishing places of that character. It is to be hoped, with this stock to work on, that some of our skilful hybridisers may ere long turn this variety to good account and endeavour to raise seedlings from it, which, if successful, would be of great benefit to the possessor, as they would be of far greater value than any of the stove kinds, on account of being more hardy and altogether of a bolder type. Unfortunately it is rather a shy bloomer, for although I have had huge plants for years, I have never yet had the pleasure of seeing any of them flower; it is a common occurrence, however, for the stove varieties to do so, which accounts for the great increase of new kinds that have been sent out of late. Besides the use made of this noble-leaved *Caladium* for indoor decorative purposes, it is very effective for forming groups, or beds, or for placing near the margins of lakes, ponds, water basins, or fountains, in either of which positions it produces a very striking effect. Where employed at all for any of these situations, the plants should be started at once by introducing them to any warm pit or house, where they can come slowly on, so as to form two or three good leaves by the end of May, at which time they may be turned out if previously hardened and allowed to stand till the end of October, when they should be dug up and laid in in any deep pit or frame for the winter. In pots they are very easy to grow, as all they require is free drainage, light, rich soil, and an abundant supply of water during the whole of the summer, otherwise their leaves will not obtain the proper size or assume that charming green tint for which they are so highly prized. To start the above varieties much more heat is required, and a fit place for them will be found in any *Cucumber* or *Melon* bed now at work; or, placing them on the hot-water pipes along the front wall of the stove. In the latter position they will require an occasional watering to prevent the soil from becoming too dry, but not so if plunged in any hotbed, as there the moist heat would keep them more uniform. It is the practice with some to shake out the bulbs and re-pot them in fresh soil before starting them, but I much prefer doing this afterwards, as there is much less risk of losing them, and it is an easy matter to make any increase that may be desired by dividing the bulbs with a sharp knife, an operation that should only be carried out after they have made roots and top growth, when the cut part soon heals over, which would not be the case were it performed before that time, as in all probability they would rot, especially if the soil become the least wet, or a very brisk heat were not kept up. In potting, the size of the pots must be regulated according to the strength or otherwise of the different varieties treated and the purposes for which they are required, as must likewise the number of bulbs, or separate pieces of the same, three of either of which of any of the strong-growing kinds will be amply sufficient to form grand specimens in 12-in. pots.

For general decorative purposes, however, pots of smaller size with only one bulb in each are far more useful, as they can then be dropped into vases to stand in window recesses or for table decoration, for either of which purposes few plants are better adapted. As they all require plenty of water during the summer, the pots should be well drained, and a free, open soil used, such as a mixture of tough fibry peat and loam, or leaf-soil, and the latter in about equal proportions, with just sufficient sharp sand to keep it open and porous. A little dry sand or charcoal dust placed against the cut part of any that have been divided will be found a great protection till they heal over, and until this takes place water should be given in the most sparing manner, as there is almost sufficient moisture in the bulbous roots to sustain them till they get well into leaf, at which time, unless in very large pots, they cannot well be kept too wet, if the heat be in proportion. In order to develop their rich leaf-markings to the fullest extent, they should be subjected to plenty of light, and only receive just sufficient shade to keep them from burning. Grown as they generally

are in a close, moist atmosphere under thick shade, their leaves are so thin and flimsy, and the foot-stalks so weak, that they are unable to remain erect without the aid of sticks and ties, the presence of which spoils half their beauty, independent of the weedy appearance such plants have compared with others grown with plenty of light and air as they should be. Caladiums are but slightly subject to insect pests, as the only kinds that affect them are green fly and red spider, the former of which attacks the young, unfolded leaves, but is easily dislodged by a slight fumigation of Tobacco, or by dipping their heads in Tobacco-water; and the spider is readily kept at bay by proper attention to syringing and never allowing the plants to suffer from want of water. The best way of treating Caladiums when high colour is aimed at, is to set them on inverted pots that they may have their heads clear above other plants and be up near the glass, where they will come stiff and strong and stand the air of a sitting-room when removed thither without showing the least signs of distress. Any ordinary pit will do for them during the summer if advantage be taken of sunny days to shut them up early in the afternoon and give them a good syringing at the same time. The autumn treatment consists in a gradual drying off till the leaves die away naturally, when the pots should be stored for the winter on the back shelves of a stove or some other similar position away from drip, where the temperature never gets below 55°.

S. J.

FORCING ROSES IN POTS.

ACCORDING to my experience—and I have forced Roses in nearly every kind of glass structure—there is no class of hardy-flowering shrubs more accommodating or more manageable under pot culture than Roses. If in good health and well established when introduced to the forcing-house, a crop of flowers may be looked upon as a certainty. The best kind of structure for early work is a low half-span house, with a pit filled with tree leaves in the centre, in which the pots should be about half plunged. The soft, genial atmosphere arising from the fermentation of the hotbed has a wonderful effect in increasing the vigour of the growth and the size and brilliancy of the flowers. In forcing anything, no matter what, there are certain principles bearing thereon which, although susceptible of modification in certain cases, yet cannot be altogether ignored if the permanent health of the plant be taken into consideration. For instance, it is not a good practice to introduce any plant to a high temperature all at once, nor yet to take it from a high temperature immediately to a low one. The right and true principle in forcing is to start with a very moderate temperature, and gradually increase it as growth progresses till the maximum is reached, and then to harden and mature the growth in like manner. In practice, however, this cannot always be carried out, for in many places the forcing house or pit is kept at one uniform temperature, whilst a constant stream of plants and shrubs grown for their flowers is passed through on their way to the conservatory or drawing-room. Of course neither the flowers nor yet the plants are so lasting; the former soon wither and die, and the latter, weakened and exhausted, soon succumb; therefore where a large and constant supply of flowers is required in winter, it will in the long run be more economical as well as altogether more satisfactory to have a house of intermediate temperature, and in the case of Roses this is more important in cooling them down when they leave the forcing-house than even upon their admission. To have really fine blooms the night temperature should at no time exceed 60°, with a rise of 10° in the day during sunshine. Where there is a pit of leaves in the forcing-house, and the floor and bare surfaces are occasionally damped, there will be no necessity for much syringing. I always think under such circumstances that if the syringe be very freely used, it seems to take the finish and gloss from the foliage, and there is always a lurking danger to be apprehended from hard or impure water, and Roses, even when grown only for cut blooms, should have a certain proportion of clean, healthy foliage associated with them. In a structure of the kind described, with a healthy, genial atmosphere, insects will not be very troublesome; but should green fly make its appearance, the moment its presence is known give

a couple of light fumigations of Tobacco or Tobacco-paper, with two or three days' interval between. Of course curled leaves should be watched for, and the little maggots that are usually coiled up therein destroyed. As regards varieties, all the most vigorous growers, no matter to what class they belong, may be successfully grown and forced in pots; but Teas and Hybrid Perpetuals are especially desirable to have in quantity. As a rule, all those kinds that do well in the open air will also succeed indoors, and to these may be added most of the Teas.

If fairly and liberally treated Roses may be grown in pots of the same size for many years, although of course where one has plenty of room it is best to allow and encourage a gradual development in size; or, if large specimens be desired, they can easily be shifted on into larger pots; and in time, with skilful training and care very handsome valuable plants may be formed. I have already said that Roses may be grown in the same sized pots for many years, and produce annually a crop of flowers, but it is necessary to re-pot annually, removing as much of the worn-out soil as possible, and using clean pots. I think there is no question that Roses, on their own roots, are best adapted for pot culture, but, whilst making this admission, I do not believe that raising them from cuttings is the most expeditious way of getting up strong plants. Grafting close to the collar of the seedling Brier, or, better still, on healthy roots, is a preferable mode, and will produce more vigorous plants in less time than if cuttings alone be used; and by simply burying the junction of the graft and scion when potting the plants, in the course of a year, or at most two, they will virtually be on their own roots. I lately removed some that were grafted on roots of the Brier two years ago, and each plant had formed numerous roots, above and altogether independent of the stock, and they would have sustained little or no check if the stock had been removed. I like the Brier as a stock for pot culture better than the Manetti. The latter has strong, stubborn, deep-striking roots, whilst the Brier is essentially a surface-rooting plant, producing a mass of fibrous growth. The strong contrast between the roots of the two plants would suggest the advantages to be gained by using the Brier for pot culture almost without any practical test. The indoor Rosery might be made a most interesting feature in any establishment, and one that could be enjoyed, even in the neighbourhood of towns where Rose culture in the open air is largely beset with difficulties, and even where open-air culture can be successfully carried out, there are usually more deaths among them annually than among a similar number in pots. Then, again, there is a never-failing source of interest in watching the unfolding of the leaves and buds in winter, and noting the numerous shades of colour in the rapidly expanding foliage of a collection of Roses, from glowing crimson to the brightest, freshest green. I do not think there is any other class of plants that shows so much variation in the ever-changing hues of their young growth, and this is especially noticeable early in the season under glass. With the necessary facilities for forcing, Roses may be had in bloom pretty well all the year round in any climate, but the flowers produced during the short, dark days of winter, have not the same bright colours, nor yet, to my mind, the same delightful fragrance that they have when the days lengthen in March. As regards soil, a good sound loam, adhesive rather than sandy, that has been laid in a ridge for six months to get mellow, mixed with about a third of its bulk of thoroughly decayed manure, will grow Roses in perfection; if it be intended to grow them continually in rather small-sized pots, a sprinkling of crushed bones might be added with advantage. There is one other matter in connection with forcing Roses to which I will just briefly refer, viz., the careless way in which the plants are too often treated when they have done flowering. All plants that have been forced—especially those forced early—should be moved to a cool-house or pit, so that they may gradually become hardened off, till they can be plunged in the open air. E. HOBDAV.

Amorphophallus Rivieri.—This is without doubt one of the most striking plants among tuberous-rooted Aroids. The leaf (for generally there is only one) is produced after the flower has died away, and frequently measures 4 ft. or more across.

PLATE LXIV.

THE SNOWDROPS.

Drawn by F. W. BURBIDGE.

THE SNOWDROP is the most welcome of all the flowers of the new year on account of its early appearance; and although one of the oldest and most abundant of all hardy bulbs, one never tires of its modest beauty whatever may be its surroundings, although Snowdrops never look better than when naturalised in large irregular masses amid tender herbage in old-fashioned orchards and paddocks, or on the margins of more kemptly-dressed lawns, or beside woodland walks, where their crowds of pearly pendants, set amid soft glaucous foliage, serve to usher in the Star Wind-flowers and golden Daffodils. Speaking of naturalization, the Snowdrop is one of the very few hardy bulbs which is sufficiently vigorous in constitution to propagate itself in a semi-wild state or on Grass. Perhaps this hardy vigor accounts for the fact that we are not dependent on the Dutch growers for Snowdrops, for nearly all our Snowdrops are grown in this country, and especially in Lincolnshire, where, in the vicinity of Spalding and Boston, many acres are devoted to the culture of Snowdrop and Narcissus bulbs of various kinds. In Nottinghamshire, too, near Bingham, considerable quantities of Snowdrops are grown for trade purposes. The cost of planting an acre of these bulbs in Lincolnshire is said to be at least £100; but, of course, on suitable, light, warm soils a proportionate return is obtainable. Almost any soil suits the Snowdrop, but deep, rich, well-drained gravelly-bottomed soils are most suitable, although in some parts of Nottinghamshire and Leicestershire we have seen them grow most luxuriantly on hedge-banks and in old orchards on the coldest and wettest of clay soils. There are four species of Snowdrop (*Galanthus*) in cultivation, all natives of temperate Europe and quite hardy in our gardens, where they may be used in an infinite variety of ways, not only in isolated masses on the Grass, but grouped on well-made rockeries or root-work, or in the wild garden, where they may be tastefully associated with *Anemone fulgens*, *A. coronaria*, *A. hortensis*, *A. blanda*, early purple and yellow kinds of *Crocus*, *Bulbocodium verum*, Winter *Aconites*, and *Iris* of various kinds, such as *I. reticulata*, *I. Histrio*, and *I. stylosa*, all of which bloom in January and February. As cut flowers, all the Snowdrops are most attractive, since they may either be grouped with sprays of Box or Ferns, or associated in bouquets and wreaths with Orchids, Rose buds, Forget-me-nots, and other choice cut flowers. To cull the flowers in the bud state is, however, essential in order to ensure their most perfect beauty, as they then bear carriage better and open fresher in water than when cut from the plants after they are fully expanded. Snowdrop buds so gathered will remain beautiful for ten days or even longer, while those cut after expansion on the plant will fade in about a week at the latest. As to the distinctive characters of the four Snowdrops now in cultivation, they are more apparent to the cultivator than to the botanist, seeing that their flower structure is almost precisely the same. *Galanthus nivalis* is recognised by its narrow leaves, dwarf habit, and small flowers; *G. plicatus* has very broad leaves, the margins of which are curiously turned down or deflected, and the flowers are larger than those of the first named; *G. Elwesi* is as dwarf or even more so than *G. nivalis*, but its leaves are half-an-inch or more in width, and the flowers are like those of *G. Imperati* but with more globose-shaped buds, and the inner petals have an oblong green blotch at their base as well as the usual double green blotch near the apices; *G. Imperati* is the most stately of the whole group, varying from 6 in. to 12 in. in height, the outer segments of the perianth being $\frac{3}{4}$ to 1 in. in length. As garden plants, these are distinct enough, but it appears to be a question whether all the Snowdrops are not forms of the same species differentiated by long continued growth under different climatic conditions.

Common Snowdrop (*Galanthus nivalis*).—This plant is the most northern and at the same time the smallest and only species with any pretensions to being a native of Britain. In Syme's English Botany the plant is figured and described as being found "in pastures, meadows, and orchards in many places in England and Scotland, perfectly naturalised and possibly native in some of the English stations, as at the base of the Herefordshire Beacon,

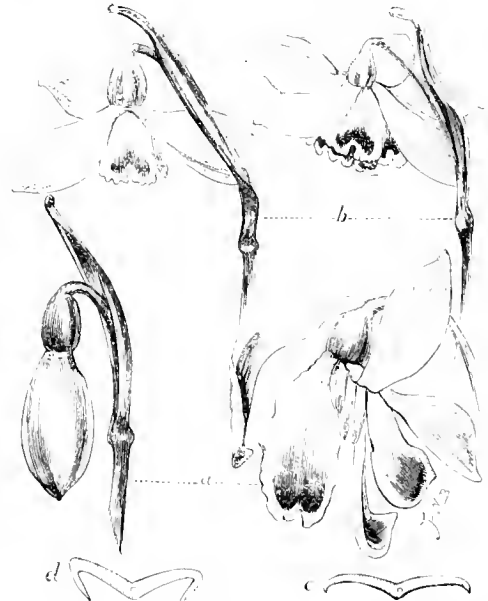
near Little Malvern, and near Wrexham, Denbigh." The authors of the "*Cybele Hibernica*" do not consider it thoroughly naturalised in Ireland. Of all species this is perhaps at present the most useful, being most abundant; and it deserves to be naturalised on Grass and in rocky or semi-wild parts of all gardens along with some Winter *Aconites*, *Anemones*, and other hardy flowers, not forgetting the common Daffodils, which flower so freely in the meadows of Herefordshire and other counties. A double-flowered form of this plant is very common in old gardens.

Crimean Snowdrop (*G. plicatus*).—This is generally considered a well-marked species, being easily distinguished from all the others by its broader and less glaucous leaves having deflected or plaited margins, whence its specific name has been derived. In Syme's "English Botany," it is said to be "a well-marked sub-species [of

Flower bud of *Galanthus Imperati* (natural size).

G. nivalis] from South-Eastern Europe and Asia Minor, larger in all its parts, distinguished by the leaves having revolute edges when young, and the apical lobes of the petal being less rounded." A figure of this plant evidently made from an ill-grown example is given at t. 2162 of the "Botanical Magazine."

Large Neapolitan Snowdrop (*G. Imperati*).—This is by far the largest-flowered species in cultivation and the most stately in



a. Flower bud and a single flower of *G. Imperati* (half natural size); b. Flowers of single and double forms of *G. nivalis* (natural size); c. Section of leaf of *G. Imperati*; d. section of leaf of *G. plicatus*.

habit, well-grown bulbs of it bearing nodding scapes from 10 in. to 12 in. in length. The leaves are twice as broad as those of the common Snowdrop, and of a more glaucous green colour. The flowers are of pearly whiteness like those of the last-named plant, and the bracts at the base of their pedicels are also frequently edged or margined with white. Another characteristic of this plant is the tendency its flowers have to be semi-double or malformed as shown



in our wood engraving, some of the petals springing from the base or sides of the ovary instead of from its apex in the normal manner. The outer segments of the flower are stout in texture and often 1 in. in length, the lips of the inner petals only bearing dark green, feathered blotches. When more plentiful this plant will be most valuable for massing on the margins of the lawn, or by woodland walks in warm positions, and apart from its beauty as seen nestling amid the Grass and other spring-tide vegetation, its flowers are very useful for bouquets and other floral decorations. This plant is a native of Italy, and has recently been introduced by Messrs. Back-



Elwes' Snowdrop (*Galanthus Elwesi*).

house, of York, and other nurserymen. Our figure of this plant was made in Mr. Barr's bulb ground at Tooting in February, 1875. The engraving of a flower-bud of *G. Imperati* (see p. 194) is from a sketch sent to us by Messrs. Backhouse & Son, and represents a large unexpanded flower (natural size); and to our mind it is thus far more beautiful than when open.

Elwes' Dwarf Snowdrop (*G. Elwesi*).—In general appearance this very nearly approaches the last-named plant, but it is much dwarfer in habit, rarely exceeding 6 in. in height. It is readily distinguished on close examination, however, each of the three minor petals having an oblong green blotch at its base in addition to the feathered blotches near their apices. A good figure of this plant

appeared in the "Botanical Magazine," t. 6166, together with the following description:—"This fine Snowdrop is very distinct from any previously described, though whether all these, namely, *G. nivalis*, L., of N. Europe, *G. plicatus*, M.B. (Tab. nest. 2162, a poor plate of a small specimen), of the Caucasian regions, and *G. Imperati*, Bert., of Italy (*G. plicatus*, Teore, not of M. Bieb.), should not, together with this, be regarded as geographical forms of one, may be a matter of opinion. *G. Elwesi* is nearest to *G. plicatus*, but differs in its basal sheath being more or less deeply notched or even divided on one side; in the leaves not being folded within the sheath, but twisted; in the larger flower and fruit; and in the form and colour of the inner perianth-segments, which in *G. plicatus* are not as in this constricted in the middle, and are merely notched, not bilobed at the tip, and are white with two confluent green spots confined to the top. Lastly, the anther-cells are shorter and broader in *G. Elwesi* than in the Kew specimen of *G. plicatus*. *G. Elwesi* is a native of the summits of Yamanlardagh Mountains, north of the Gulf of Smyrna, where it was discovered by M. Balansa in 1854, and whence dried specimens were distributed under the name of *G. plicatus*, being so named by M. J. Gay, of Paris. I am indebted to Mr. Elwes, of Miserdine House, Cirencester, an ardent lover of scientific horticulture, for pointing out its distinctive character from *G. plicatus*, and which Mr. Baker has confirmed. Mr. Elwes collected specimens on the mountains near Smyrna in 1874, and cultivated them in his garden at Miserdine, which bids fair soon to contain perhaps the largest and best private collection of well-named bulbous plants in the kingdom; it flowers in February, and is quite hardy." Our wood engraving is from a sketch made from a plant which flowered in Mr. Barr's collection in 1875.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Lawns and Walks.—The present winter has unmistakably exposed any defects that exist in the drainage; and where these are apparent means should immediately be taken to remedy them; and if the work be at once completed, the soil thoroughly well rammed down, and the turf carefully laid, the Grass will commence to grow directly, and the disarrangement in a few weeks will scarcely be perceptible. A wet lawn should never be tolerated, as after wet weather, even in summer, it is frequently for days unfit to walk upon with any degree of comfort. In draining a lawn the work should be so done as to insure the water quickly percolating from the surface down to the pipes; this is best effected by filling over them broken bricks, rubble, clinkers, ballast, or any similar open material to within 8 in. or 10 in. of the top. The whole surface should then be well swept, in order to remove all worm-casts, leaves, or broken twigs, and rolled so as to present a neat appearance. Those who take a pleasure in having their gardens orderly, usually each spring surface their walks with a thin sprinkling of fine gravel, independent of the general gravelling that is from time to time required; to effect this in a satisfactory manner, it is not necessary to pick up the old material to the same depth as when a considerable quantity of new gravel is laid on, still the surface should be loosened about 1 in. or so after a shower with an ordinary iron rake; but if the weather be dry, there is no necessity to wait, as the required softening of the old gravel can be easily done with a watering-pot. In the choice of material for this surface-dressing, it is necessary to study the nature of the gravel obtainable in any particular locality. Where the soil is of a loamy, adhesive character, with little or no sand intermixed, the gravel should not be so fine, that is, a larger-meshed sieve ought to be employed in riddling it, for although the very fine gravel looks well when smooth and set after being rolled in a moist state, yet, from its adhesive nature, directly it is wet it becomes sticky and disagreeable to the feet; no well-made gravel walk will ever become soft, no matter what amount of rain has fallen, except during a time of thaw after severe frost, when, as a matter of course, even the best gravel walks become loosened. In parts of the country where gravel is of a sticky, soft nature, it is best to pass it through a riddle with 1-in. or $\frac{3}{4}$ -in. mesh, afterwards using a fine sieve to screen out all the earthy portion, retaining nothing but the small stones; if this be sprinkled on the top so as to just cover the surface, and well rolled in whilst damp, it will make a walk clean, smooth, and pleasant to tread upon even in the wettest weather.

Kitchen Garden.—Make another sowing of Peas. Where suitable sticks are plentiful, tall kinds are the best to sow at this period of the year, as they bear longer than dwarf sorts, or such as are of medium height; where tall varieties are grown always give plenty of room; there should be not less than 5 ft. between the rows, as to crowd them is the reverse of any gain, for without sufficient air and light the pods never fill as they ought. Directly the earliest

sowings are staked, a line of Spinach should be sown between the rows; this will be ready for use and the ground cleared before the Peas are fit to gather, and it will in no way interfere with their growth. The main crop of Onions should be sown as soon as the land is sufficiently dry, but on no account if it be so wet as to adhere to either the tools or the feet, as should the seed be sown when the soil is at all sticky, subsequent dry weather will be sure to bake it so hard as to prevent it working kindly through the ensuing season. In pointing in the surface-dressing of manure previously recommended to be spread over the ground, do not let it be too deep, or the young plants will be too long in getting their roots into it. Many of the most successful North-country Onion-growers put the greater portion of the manure they use on the surface, allowing it to remain until it is well sweetened by the action of the air, sowing the seeds in it, and covering the whole with $\frac{1}{2}$ in. of soil from the alleys. With this, as with almost all other vegetables, I should recommend amateurs to adopt the system of growing in rows; I admit that it takes a considerable time longer in sowing than the broadcast plan, but it affords such great facilities for thinning the crops, for the use of the hoe in destroying weeds, and for keeping the surface stirred (by which the ground is aerated and made open for the descent of rains, and the loss of moisture by evaporation in dry weather is prevented), that the first trouble is amply compensated for by the succeeding results. The use of soot should not be omitted, especially in old gardens where the land is at all light, for in these the ravages of the Onion grub are most felt; the soot not only acts as a powerful manure, but the ground retains the smell through the season in a way that is so objectionable to the fly as to have a considerable influence in preventing it depositing its eggs on a crop where the land has been dressed with it. After the ground has been levelled, tread the whole quite solid; the lighter the land is naturally, the more solid it ought to be made; then mark out the rows 1 ft. apart and $\frac{1}{2}$ in. deep. After sowing, draw the soil over the seeds with the back of the rake; again tread the ground thoroughly, and finish by rolling. In dry districts where Broad Beans were sown about the beginning of the year, they will be now above the ground, and a second sowing should be made; this crop also likes heavy soil. Sow more Radishes, raking in the seed, it not being necessary now to cover it with litter. See that the litter is removed altogether from the second sowings as soon as up, for after this time the frost is not likely to be sufficiently severe to injure them. Sow a little Mustard and Cress every fortnight in well-manured ground; to have this young and tender, it is necessary to sow often. Lettuce should also be sown on the richest piece of ground available—a little of the Cabbage variety (Tom Thumb) as well as Cos—the former will be sooner fit for use and precede the erect-growing kinds. Rows for the latter should be 15 in. apart; the others will do a third less. In sowing, the best method is to drop the seeds half-a-dozen together in patches as required to be grown; afterwards thin them out to a single plant. If the weather be mild, a portion of those that have been wintered in frames should be planted out in a sunny, sheltered position, but do not risk the whole, as I have known the weather after this time to be so severe as to seriously affect them, especially after a winter like the present, when every kind of vegetation has been kept continuously soft and growing. Take them up carefully with a trowel so as to preserve the roots as far as possible from injury; give some water as soon as planted, and if the days be sunny or the nights cold, place a small flower-pot over each plant for a few days, but not pressed down so closely as to exclude the light. Now plant a row of the earliest Potatoes at the foot of a south wall on ground prepared as recommended a short time ago. In the case of this or any other crop planted in such a position, see that the wall coping slopes sufficiently to the back or opposite side so as to prevent drip. I have frequently seen instances wherein Potatoes, French Beans, or similar vegetables, when planted in such a situation, have either been destroyed or injured by the water dripping on them consequent upon the coping not being in the right position. A piece of ground should now be prepared and planted with Jerusalem Artichokes. Any out-of-the-way corner where little else will grow is often considered good enough for this crop, but it is a very great mistake to suppose that under such conditions the produce will be anything near equal in size or quantity to that which may be expected from a better position and treatment; not that it is necessary to choose for this Artichoke the best situation in the garden, yet it should have an open place away from the shading influence of trees, or from the impoverishment of the soil by their gross-feeding roots; the ground ought also to be well dug and moderately manured. Where a plantation of Horseradish has to be made, it is advisable to see to it at once; for this the ground should be well and deeply dug, and liberally manured. The thong-like portions of the roots similar to those planted in the case of Seakale are the best to employ, planting

them in a slanting direction; the longer they are the better, up to 10 in. or 15 in. if obtainable, as when grown the clean, straight piece of usable root will be in proportion to the length of the piece now planted. The cultivation of Horseradish on such a plan as the above is very much superior to the old system of planting the crowns, which, however deeply inserted in good soil, always results in the roots being shorter and more or less affected with dwarf, spur-like roots, which are useless. Horseradish likes a moderately free soil, and in situations where the land is naturally heavy, it will be much benefited by digging in 5 in. or 6 in. of road-grit, spent tan, or leaf-mould; or a mixture of the three together will be found to answer well.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

March 12.—Potting off spring-struck Petunias, Verbenas, Heliotropes, Aloysias, Salvia patens, and scarlet Lobelias. Shifting more French Beans into their fruiting pots; also potting Caladiums and placing them in Melon pit. Re-potting Ferns in loam, sand, and peat; also Nemophilas, and placing them in pits. Potting Cattleys. Getting shades on Dendrobium and Cattleya houses, and painting glass where required to keep hot sunshine out. Sowing Balsams, Celosias, Primulas, Victoria Stocks, Perillaz, Tagetes, Helichrysoms, Egg-plants, Nierembergias, and a good bed of Mignonette; also Spinach, a little Chervil, and main crops of Carrots and Parsnips, and also a little more Nonsuch Celery and Cress. Planting Potatoes, Shallots, Garlic, and Rhubarb, and filling all spare cases with Cauliflower plants; also planting a border with autumn-sown Tripoli Onions. Pricking off seedling Lobelias and Lettuce plants. Putting in cuttings of Vesuvius and Dr. Lindley Pelargoniums, and another forcing of Asparagus. Tying up more Lettuces under cases. Sticking early-sown Peas. Nailing Rose trees on wall. Digging Rose garden, manuring and digging land just cleared of Cabbage for Peas, and putting hills of soil in pit ready for planting out Cucumbers. Looking over Vines for thrips, washing Camellias, syringing East Indian Orchids (but not the Saccoboliums) every evening, getting rough manure together for Melons, and manuring Asparagus beds and covering them afterwards with sand. Gravelling kitchen garden walks, earthing up Potatoes in frames, and cutting away suckers from fruit trees.

March 13.—Potting stove plants; beginning to pot Dendrobiums in Moss, fibry peat, and small crocks; re-potting *Lælia anceps* Dawsoni. Planting *Schizostylis coccinea*, spring-sown Cucumbers, and Seakale plants for permanent beds, also Globe and Jerusalem Artichokes, and Ealm. Putting in cuttings of Fuchsias, scented-leaved Pelargoniums, and Centaureas. Preparing ground for Beetroot. Letting protections down over Apricot and Peach trees every night. Putting a layer of horse-droppings over Vine border. Manuring old Apple trees. Preparing more frames for Potatoes. Putting ashes over Peas. Giving Strawberry plants that are set some soot-water. Earthing up Peas. Pruning standard Roses. Cutting Laurels. Weeding walks. Keeping Vinery in which the Vines are in flower at 65 at night and 70 by day with fire-heat. Plants ready for house decoration—Crocuses, Narcissi, Hyacinths, Tulips, Lily of the Valley, Snowdrops, Forget-me-Nots, Primulas, Cyclamens, Sweet Brier, Lilacs, Rhododendrons, Cytisuses, Callas, and Mignonette.

March 14.—Potting Larkspurs, Schizanthus, Alyssums, and Melons. Taking up and re-planting young Wellingtonias; planting variegated Yews and Globe Artichokes. Dividing herbs, and re-planting in newly-made beds. Sowing a large bed of Chervil. Pricking off *Cineraria maritima* and Gaillardias. Digging flower borders; also land for seed beds. Putting in another batch of Asparagus roots for forcing. Putting *Maréchal Niel* Roses into Peach-house, placing Camellias in cool-house to keep back their blooms for Easter, and removing earliest Celery into cold frame. Thinning Peaches where too thick. Levelling verges in flower garden. Keeping Hamburgh-house in which the buds have just burst at 58° at night and 63° by day.

March 15.—Shifting some of the strongest of the *Calecolarias*. Potting off autumn-struck cuttings of Heliotrope; also cuttings of Colens. Shifting Cattleys, Lady's-slippers, and *Lælia purpurata* into larger pots. Sowing Auriculars and ornamental Grasses; also Leeks, Parsley, Radishes, and Rhubarb. Planting seedling Seakale, Rhubarb, and autumn-sown Onions. Washing and otherwise putting in good order some Camellias. Watering first Muscat-house border. Dividing old Violet roots ready for planting, and preparing land for them. Netting Radish beds out-of-doors. Staking Mignonette. Getting in loam for pot Vines. Earthing up Cucumbers. Heeing

between autumn-planted Cabbages and Onions. Putting Feverfew out-of-doors to harden ready for planting.

March 16.—Potting Balsams. Dividing and potting *Adiantum cuneatum* in 60-sized pots. Potting off Musk plants for balcony; also young *Fuchsias*, *Ageratum*, and *Alyssum*. Mossing *Cymbidium eburneum*. Blocking *Dendrobium formosum*. Sowing Laxton's Alpha, Champion of England, and Veitch's Perfection Peas, Broad Beans, and main crop of Onions. Planting Rhubarb roots for forcing. Pricking off Tomatoes and Egg-plants. Taking Hyacinths out of heat as fast as they open their flowers. Tying Vine shoots, and putting strings to last potted French Beans. Watering third Peach-house border; also Radishes in frames. Digging flower borders and beds; also land for more Carrots. Preparing ground for Asparagus new beds. Putting manure and leaf-soil in trenches for *Viola cornuta*. Wheeling in rubbish heap to garden. Inarching Vines. Panigating Strawberries and Roses in pots for green fly. Sticking Peas. Keeping Muscat-horse, which is coming into flower, at from 70° to 73° at night.

March 17.—Potting off *Petunia* cuttings. Shifting a few *Fuchsias* into 6-in. pots. Potting *Lælia anceps* in Moss and peat, and blocking *Dendrobium formosum*, *D. albo-sanguineum*, and putting fresh Moss to *D. chrysois* and *D. lasioglossum*. Sowing *Perilla nankinensis*, *Amarantus melancholicus*, *Humea*, *Celosia pyramidalis aurea*, and *Mignoneite* in heat; also Tomatoes, Walcheron and Early Loudon Canliflower; also sowing Ringwood Marrow and Bishop's Long-pod Peas, with Spinach between the rows. Planting more Seakale thongs; also putting out Canliflower plants between rows of Peas. Planting out *Carolina superba* and Frogmore Late Pine Strawberries. Pricking out two boxes of Lettuce plants. Putting in cuttings of *Scutellaria* and *Plumbago*. Putting Chicory in heat weekly. Getting Hollyhocks and *Dielytras* out-of-doors. Filling orchard-house with *Pelargoniums*. Sponging Vines for thrips. Taking up and laying in Parsnips.

GLAZING GREENHOUSES.

THE method proposed by "D." (see p. 154), and to which Mr. Pearson, of Chilwell, objects (on satisfactory grounds, as I think), I put in practice eight years ago, only instead of applying it to a greenhouse I covered a small outbuilding with Duchess slates (2 ft. by 1 ft.), pushing them up from the bottom, and securing them in their places with copper nails driven into the wood sideways, each slate resting at its lower end on the heads of the nails, and overlapping the slate beneath it. The upper part of each rafter was ploughed out on each side to the depth of nearly $\frac{1}{2}$ in., planed, and painted with two coats of red lead and two of Carson's Anti-corrosion Paint. Four slates make up the length of the rafters, and each slate has a piece of lath about 13 in. long, slipped in under it, to support it in the event of its cracking down the middle. The chief advantage of this arrangement is that you can so easily throw light into the building by the introduction of one or more panes of glass of the same dimensions as the slate; but I do not recommend the plan, for the saving in slate is not equal to the cost of paint and extra labour. Still less would I recommend its application to conservatories; for the latter Mr. Pearson's plan (see p. 184) is certainly the best. One of your correspondents has, I think, lately advised only bedding the glass in putty, dispensing with the usual application of it above: this is an old method. I have a house that was glazed in that way eight years ago, and a small portion of the glass still remains with only the bedding putty to attach it to the wood. If great attention be paid to keeping the margin of the glass well painted, where it joins the rafter, this method might be used with safety; but I found here and there a pane loose on one side, owing to a deficiency of paint on the outside of the junction, and I thought it better to have the whole of the top done over with putty in the usual way than to reset the loosened panes. There may be some little difficulty in getting glass in the form which Mr. Pearson recommends; perhaps he will be so good as to inform us where to get it cut in that way. But I much doubt if "D." will find any system answer better than the old-fashioned one which he denounces, if he will only cut his glass after the Chilwell pattern, and secure it with putty of the best quality, a matter perhaps of more importance than is usually attached to it. My Duchess slates are laid on a high-pitched roof, and if at any time rain gets into the grooves, it runs down and escapes outside; but in the case of an ordinary greenhouse, glazed on that plan, drip would not be prevented without the application of putty to the undersides of the glass in the grooves that support them. B. S.

THE FRUIT GARDEN.

SHOULD VINE BORDERS BE INSIDE OR OUTSIDE?

It has been asserted that the roots of Vines have an inherent tendency to travel towards the south; and this circumstance, if there be any truth in it, has been used as an argument in favour of planting the roots in an outside border, where they may have unrestricted liberty to grow in that direction. Vines are generally, although not always, grown in what are known as lean-to houses facing the south; and whether the roots are intended to occupy an inside or an outside border, they are placed contiguous to the front wall of the structure, while the rods are trained under the glass roof. Cases have also been reported in which suitable borders of soil have been duly prepared inside the structure, but into which the roots of the plants have refused to enter, or to extend themselves towards the back wall, and have been found years after having been planted tenaciously clinging to the front wall; and if not quite like Sterne's stalling, loudly asserting that they could not get out, were nevertheless endeavouring to do so, and disregarding the allurements which a bed of rich and suitably-prepared soil presented to them. That instances of this kind have occurred, I will not attempt to dispute; but I can, on the other hand, testify that such is by no means generally the case, and very many instances may be adduced to prove that the roots of Vines show no disinclination whatever to extend themselves towards the north. It must, however, be admitted that Vines whose roots are confined to the limits of an inside border are, however deep and rich such border may be, placed in circumstances somewhat similar to plants growing in pots. When Vines have attained to considerable age, the area of the structure may in many cases be insufficient for the continuous development of the roots; but as has been stated, this will only be found to be the case where the plants have attained to a very considerable age, and as young Vines are found to come very speedily into a bearing condition, unless in exceptional cases, it may not be advisable to retain them long after they have passed their best. In the case of Vines intended for very early forcing, most growers will be inclined to admit that it is desirable to have the roots inside the structure, where the soil containing them, being in immediate contact with the artificially heated atmosphere, cannot long remain quite cold, but must necessarily have its temperature more or less increased, and if not to the desired extent, it can readily be accelerated by the use of fermenting materials, such as tree leaves, &c., and this can be accomplished with greater certainty, and with much less labour and litter, than in cases where the roots of the Vines are contained in outside borders. It cannot be disputed that excellent early Grapes are yearly produced upon Vines whose roots are contained in outside borders, and much credit is due to those under whose management this is effected. But the easiest way of accomplishing any given object must be admitted to be the best, the results being equal, and few will be inclined to deny the difficulty which has to be encountered in keeping, during unfavourable weather, an equable temperature in outside Vine border by the use of fermenting materials, and where neatness is of importance, the use of fermenting material is doubtless objectionable.

All things taken into consideration, it must, I think, be admitted that inside borders are best suited for early Vineries. But for the production of late fruit, and where little if any artificial heat be given, the case is obviously altered, and in most instances preference may be given to outside borders, as by the time that the Vines are ready to start into growth the borders containing the roots from their southern aspect, and their generally elevated position, have had their temperature considerably increased by the action of the solar rays, so as to equal, if not exceed, in this respect borders placed inside the structure, and consequently to some extent shaded by the Vines trained under the roof as well as by the rafters. It is quite possible that even Vines bearing crops of late fruit might be greatly benefited by a judicious increase in the temperature of the soil containing their roots, applied at certain periods, when the strain upon the energies of the Vines might be considered to be most severe—say when the Vines are in bloom and about to set their fruit, and during

The Corsican Pine and Rabbits.—According to Mr. Pebbles, writing in the "Timber Trades Journal," the Corsican Pine is "practically rabbit-proof."

the finishing and colouring of the Grapes, usually a critical period. An increase in the temperature of the soil at certain times would, no doubt, be exceedingly beneficial to various other fruits and vegetables as well as to the Grape Vine; but the difficulty and expense consequent upon the adoption of any uniform system of supplying this desideratum, will always be likely to prevent earth-heat from becoming general. An approximation, however, to this is easily accomplished by the use of mulchings of various kinds in winter. Cultivators are all aware of the great advantage of bottom-heat in many cases, such as inducing the formation of roots in cuttings of various kinds, the restoration to health of sickly or exhausted plants, &c. The amount of bottom-heat which such plants as the Pine-apple will not only endure with impunity, but luxuriate in, is very remarkable; it must greatly exceed the temperature of the soil of the native habitat of the plant, and as one of the results of this, it is, we believe, admitted that finer fruit has been produced in British Pine stoves than has ever been seen in the tropical countries to which the plant is indigenous.

The application of bottom-heat to Vine borders through the medium of hot-water pipes does not appear to have as yet found favour among cultivators, probably on account of some of the few attempts which have been made to accomplish this desideratum having proved unsuccessful owing to some defect of arrangement. There does not, however, appear to be any insuperable objections to the use of hot-water pipes as a means of increasing the temperature of the soil of a Vine border, whether such border be inside or outside the structure. The danger of producing excessive dryness, which is, I believe, the principal objection to the system, can doubtless be successfully guarded against, so that I am inclined to think that the system may yet have a fairer trial than has as yet been accorded to it, and the result may probably be found to be a diminution of shanking and other ills to which the Grape Vine is so liable.

Culford, Bury St. Edmunds.

P. GRIEVE.

THE CLASSIFICATION OF MELONS.

MR. FISH has directed attention to a question of much importance, viz., the classification of Melons. The difficulty of such an arrangement is, however, almost if not quite impossible under existing circumstances, because every locality, or to put it plainer still, every cultivator seems to have a favourite variety of his own. I have never seen Little Heath Melon recommended as an early one; it may be an early frame Melon, but it certainly will not yield to hard forcing, that is, to stand a temperature of from 90° to 100° in a case of pressure for early fruit in May. I once tried it in an early house, and all seemed to go well till circumstances pressed us to hard forcing, when Little Heath showed symptoms the reverse of being comfortable in hot quarters, whilst it turned out well in a frame with only ordinary attention. We have far too many varieties of Melons or rather "names," and so long as the present system of raising new varieties is in force, and everyone is anxious to possess something new, I can hardly see the way to any thoroughly practical arrangement in the way of classification; for who can trust to getting any particular variety true to name? Where is Meredith's Hybrid Cashmere or Trentham Hybrid—both good Melons—but so far as I know, they and many other equally fine varieties have become extinct, or, to say the least, but very little of the original strain is left in what is now sold under their names. Our earliest Melon here is Malvern Hall, and I have tried scores of varieties. In the southern parts of the kingdom early Melon culture may be a very simple process, but in cloudy, sunless Lancashire to have Melons in May requires some skill and attention. I can confidently trust to having the acquiescence of all early growers when I state that to have ripe Melons in May in a climate like ours is one of the most difficult tasks that falls to the lot of cultivators. Strawberry forcing, Peach forcing, or any other that anyone likes to name, dwindles into insignificance compared with the difficulties which one has to surmount in ripening Melons any time from the middle to the end of May; it is true, however, that there may be exceptions, where modern houses with modern appliances are available; but I

am not treating of exceptional cases; I prefer to take the majority of instances as being the most useful for general information. We grow our earliest Melons in a span-roofed pit running east and west, where there is a deficiency of both top and bottom heat, especially the latter; the bed is 5 ft. wide, with one 4-in. hotwater pipe running up the middle; we have chambered off one-half of the bed so as to concentrate the heat, and fill the remaining half occasionally with hot fermenting material, which is no small assistance in keeping up the required temperature. We only plant the side of the house facing the south early, and after many efforts earlier in the season, I can recommend the 1st of February as being early enough to sow the seed, and in the earlier stages of growth a little "nursing" under a bell-glass, kept clean, will greatly facilitate growth. In this way I have cut fruit on the 20th of May, but it is oftener the last days of the month before I have ripe fruit, and last year it was the end of the first week in June. Through the kindness of Mr. Gilbert, of Burghley, I had Gilbert's Victory of Bath and Gilbert's Incomparable sent me last year, the latter a good early variety, producing very large leaves, and swelling off some excellent fruit. I have almost made up my mind that two varieties of Melon are quite enough to grow at one place; and if good varieties be required distinct, one variety only must be grown in the same house, otherwise the plants will be quite at the mercy of ants, bees, wasps, &c., to whose irrepresible intrusions we are indebted for many varieties we never bargain for. A commonly-accepted view with many people is that the seed of a good Melon must necessarily produce good fruit; this idea is a fallacy, the truth of which may be seen at a glance, because there is always the danger of unknown hybridization—the work of insects—and new varieties often revert to the original parentage in a way for which it is hard to account.

Otterspool.

W. HINDS.

FORCING AND ITS NECESSARY PREPARATIONS.

THE amount of success which may be expected to attend forcing will, in the majority of cases, be in proportion to the preparation which the subjects to be forced have received; for example, they for the most part require a season of rest, whereby their energies may be so concentrated as to enable them to undergo the ordeal to which they are to be subjected. This is of more importance than the most assiduous attention to temperature. It sometimes perplexes amateurs to know why such ordinary subjects of the forcing pit, as Lily of the Valley, Dutch bulbs, and culinary roots should, when started very early, be more difficult to get to respond to the influence of heat than an early Vinery or Peach-house; but in the latter case, starting readily into growth is only the natural result of an early season of rest, induced by gradually successive degrees. Forcing under such conditions is deprived of its destructive effects to such an extent that in many large establishments the earliest-forced houses will be found to equal, if not to excel, the latest or retarded ones, owing to the current year's wood being ripened under favourable conditions, which compensate in a great degree for the earliest stages of growth being carried on during the dullest and darkest days of the year. The same may be said of plants whose period of flowering is advanced by successive degrees, such as Camellias, Azaleas, and similar plants which make their growth early and flower early naturally in a very slightly increased temperature; and this is the only safe or satisfactory method, for if an unnaturally high temperature be needed to induce growth, it is a proof that want of preparation will be plainly visible in the produce. But in the case of hardy subjects, such as Lily of the Valley, bulbs, shrubs, or culinary roots, it is evident that their season of rest and thorough maturation so essential a point to precede forcing, must in a great measure depend on the season; and when the autumn is mild and vegetation is prolonged very late, great caution is necessary in starting such subjects, for if lifted and placed at once in heat, some kinds will refuse to grow at all, while in others but a very weak spindly growth will be the result. For the first stages of growth, there are few more favourable conditions than a pit filled with good Oak leaves, in which to plunge pots or boxes in order to induce root-action before the growth of leaves; the

moist atmosphere of such a structure will be generally sufficient with but slight assistance from hotwater pipes to start the plants fairly into growth, after which a gradually progressive temperature may be safely introduced. Where glass structures are limited, many such subjects may be advantageously forwarded in any underground or warm cellar, as after leaf-growth commences, and when light is absolutely necessary (except in cases when the produce is best blanched), the most critical stage will be passed, and they may be forwarded more or less rapidly, according to the urgency of demand, with good prospects of successful results.

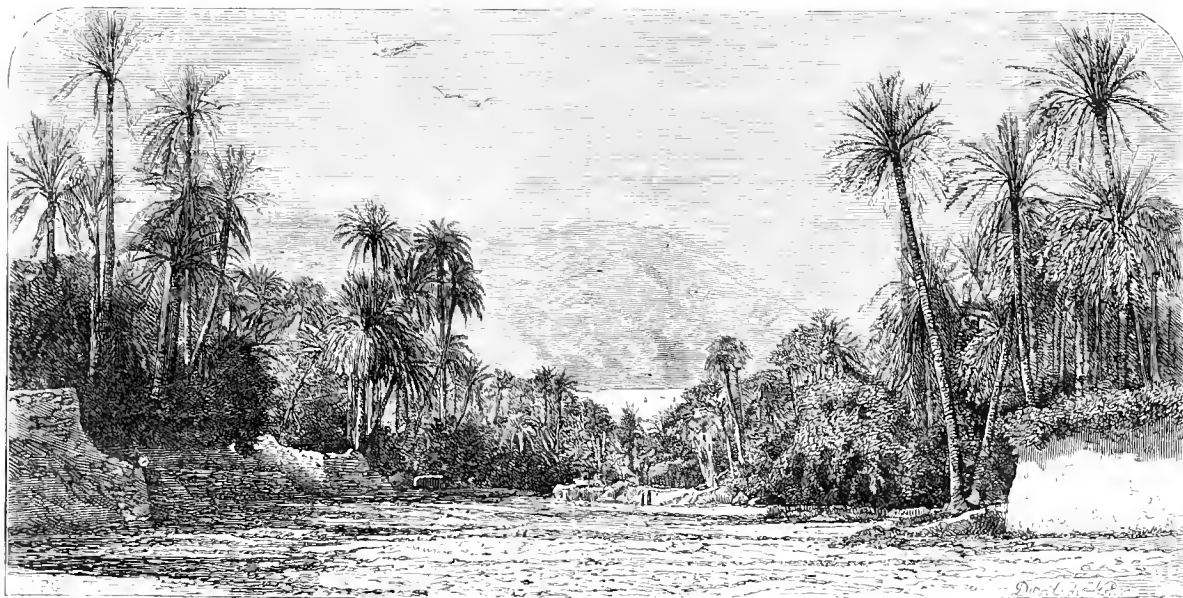
JAMES GROOM.

Henham.

Lily and other Bulbs as Food.—Lily bulbs have long been used as food in Eastern Siberia, where they receive the general name of Saranà, the varieties most highly esteemed being *Lilium tenuifolium* and *L. kamschaticum*. *L. spectabile* is also employed as a nourishing article of food. These three plants are propagated with facility—*L. tenuifolium* exclusively by means of seeds, and the others by planting the scales of the old bulbs, every one of which forms a new bulb. This much we learn from a contribution by Dr.

HISTORY OF A FLOWER MISSION.

IN days when the efforts of the charitable are constantly met and checked by the unpleasant idea that well-meant benevolence is really doing harm, and tending to pauperise and injure the very people intended to be helped, it may be a pleasure to turn to something that, by no possibility, can injure anybody, for the strictest political economist could not think any one pauperised by a bunch of flowers. There is, indeed, another objection to Flower Missions sometimes put forward from an opposite point of view, when people say "The poor need the necessaries of life before its ornaments," and hint that the time and energy devoted to this object might be better spent in some other way. Doubtless, if people substitute Flower Missions for more direct forms of charity, this argument would have much force; but, practically, it is not so, and other charitable agencies are benefited by the sympathy between classes fostered by this unpretending form of expressing interest and goodwill. Besides, in this curious old world in which things will not arrange themselves according to our theories, we must often do what we can, rather than what we think it would be well to do; and therefore we shall be wise



An Algerian Oasis.

Fischer, printed in the "Flore des Serres" about twenty years ago. "There is at Kamschatka," he observes, "a Lily which comes near *L. canadense*, but which I name *L. avenaceum*, after the name which it bears in the country, and from the form of the scales of the bulb resembling large seeds of corn. In its native country this is also eaten like the ordinary Saranà, which is however preferred to it, the wild bulbs being obtainable in great abundance." A large-flowered *Erythronium Dens-canis* is also generally met with in Siberia, where it forms an excellent article of food; and in Russia, especially towards the south, the heaths and waste lands are covered with Tulips in the spring, and one variety, which perhaps does not necessarily differ from *T. suaveolens*, is eagerly sought for and eaten by the inhabitants.

—B.

An Algerian Oasis.—This is considered one of the most happily situated oases, and is well irrigated. Under the Palm trees smaller fruit trees are grown, and any other kind of garden cultivation practised by the inhabitants pursued. The inhabitants of Bouçada number as many as 7000, mostly Arabs, and the place, like many others which have played no political part, has no history, and nothing is known of its origin.

Gas-lime.—I intend dressing the kitchen garden here with gas-lime. Will any of your correspondents kindly inform me in what proportion it should be used per acre?—W. M.

not to neglect the smaller matters in running after the larger. We may not be able to do much to help our poorer neighbours, but it is always worth while to brighten the face of the dying man or the weary little child in its hospital bed with some bright blossom, reminding them of that fair creation of which they have seen so little. Then the Flower Mission can afford to take heed to a good many waifs and strays which are out of the way of other charities—the odd cases which do not fall into any definite class. It can venture to touch the shy and sensitive forms of poverty where the sufferers often have the most to bear and complain about it the least; for the flowers find their way not only to the hospital ward, but to the dull room of the struggling governess, the annuitant's home, where there is food and shelter doubtless, but little to spare for comfort; and to the big orphanage, which, at the best, but ill represents a child's natural home. Surely the trouble is not thrown away which brings some brightness and kindly thoughts to bear on all these varied cases. Many who do not exactly want the bare necessaries of life do sorely want some things to cheer them, and it is just this bit of cheeriness which the Flower Mission aims at giving. Any one who has ever read Hans Andersen's exquisite little story of the "Sick Child and the Pea Blossom," or that other better known one of the "Angel and the Flowers," will remember his pathetic treatment of the subject of flowers in illness. He wrote like the close observer

and true poet that he was; and Florence Nightingale spoke with the authority of experience when she assured us that the value of such things in illness is not half appreciated as it ought to be. Nor is other scientific testimony lacking to show how the flowers help forward the slow progress of convalescence. So we have good warrant for not allowing the Flower Mission to be thought merely a sentimental, superfluous affair; and now, perhaps, we may pass on to consider what it really is. The idea has spread so rapidly since it was first put into practice in 1872 or 1873, that many people are now acquainted with the practical working of a Flower Mission and the objects sought by its organizers; but as there are still many to whom the subject appears unfamiliar, some brief account may be interesting.

How to form a Flower Mission.

A Flower Mission, then, is merely an attempt to give the poor, and especially the sick poor, of our great towns, some enjoyment of the flowers of the country. The details may be, and are, modified to a great extent, but this is the fundamental idea on which everything else is built. The "Mission" (by the way that word is not a very happy one, for it suggests the idea of somebody preaching to the flowers as St. Francis preached to the birds, but having got the name, we must use it till somebody invents a better) may be started in various ways. It may be begun by one person, or several, or a whole committee, but whoever undertakes it must organize it properly, or the work will be a failure. An imaginary case will show the sort of arrangement necessary. Miss F. M. wishes to establish a Flower Mission in the district of B. somewhere in London. She has the time and energy, and has also the funds for the unavoidable expenses, for though Flower Missions do not cost much in proportion to the pleasure given, yet something will be spent, as will appear as we go farther on. Miss F. M. appeals to her friends in the country to help her with flowers, and gets promises of a tolerable supply. If she cannot do the work in her own house, the next step is to find a room, which is not always easy, as it must not be in an empty building, such as a schoolroom on holidays, for supplies will arrive irregularly, and somebody must receive them. It must not be too well furnished, for flowers and boxes and hamper do make a mess; and it must not be out of the way and difficult to find, nor must it have a high rent. However, we will suppose these difficulties overcome, and a suitable room secured, then, like every other general, Miss F. M. has to see both to her staff and her transport service. The staff will probably consist of a varying number of lady helpers, a messenger or two, and perhaps also a woman may be retained to clean up the room after the work is done. The "transport service," or means for getting the flowers taken to the sick folks, must vary according to circumstances. In many cases the institutions send to fetch them, sometimes the messenger of the Mission takes them, sometimes a lady undertakes to convey the supply to one or two places—but all this has to be arranged. Another important point in sending flowers to such large institutions as hospitals, &c., is to see that somebody can and will undertake the distribution of the nosegays, or else they may simply be wasted. In getting these matters into train, Miss F. M. begins to see how many places within reasonable reach will want supplies, and she finds there is one large general hospital, one workhouse infirmary, several special hospitals and convalescent homes, one large orphanage, two or three institutions for poor ladies, annuitants' homes, and so forth. Miss F. M. has also a list of people sick at their own homes, who must not be forgotten. She does not think it likely that she will have flowers enough for all these places, so she draws up a list of those to be supplied first, and the others come in afterwards. When all this is settled she chooses her day of the week, and can begin her operations. The necessaries for the work are few and simple; one or two tables, some shallow tins to hold water, some large baskets, a few chairs, scissors to cut the flowers, wool to tie the bunches up (ladies who have faded old wools may remember that the Flower Mission will be very glad of them, wool being much better than string), pens, ink, and paper, and a store of luggage labels for the empty cases. Miss F. M. has besides some little books for her addresses, accounts, lists of people,

all sorts of memoranda; and a towel and bit of soap for washing fingers when the work is done, complete the equipment.

The Mission at Work.

Having seen what the preliminaries of the undertaking are, we may now take a look at it when it is started and in full swing, and for this purpose we will pay Miss F. M. a visit one fine spring morning. An artist might take a sketch for a pretty picture, if he followed us into the bright room, where the sun is streaming through the open window. On the deal table in the middle of the room is a long tin dish, filled with bunches of Primroses and Violets—lovely to look at, delicious to smell—and the rest of the table is covered by a confused mass of exquisite spring flowers, interspersed with trails of Ivy, sprays of leaves, bits of Grass, and soft feathery Moss. A charming old lady sits at one end of the table, bringing order out of this chaos, with her slim, faded fingers deftly putting together the fresh young flowers, so as to set off their delicate beauty to the uttermost. As she finishes off knot after knot, a younger lady, with a brilliant streamer of scarlet wool hanging from her apron pocket, lifts them away to an improvised side table, while a couple of girls stand over the heap of flowers, tying them up as fast as their fingers can move. In the foreground of the scene, another girl kneels before a big hamper, just undone, and revels in the treasures within; "and all tied up," she says in a tone of immense satisfaction. Miss F. M. is sitting on an empty box, making calculations—so many packages have come, so many more may be expected, the supply of flowers is increasing, she can afford to be liberal to-day. At this moment, a light wooden box is brought in, this comes every week, so Miss F. M. marks it off on her list, pays a shilling for carriage, and enters that also, being a woman of method. This box is an excellent one of its kind, having two small trays inside, to keep the heavy flowers from the lighter ones, a strong lock (of which Miss F. M. keeps one key and the contributor the other), and on the lid are two slips of wood which hold the large card that bears the address of the Flower Mission on one face, and on the other, the address to take the box back to the country. One of the young lieutenants now unpacks it, lays a scrap of paper with "received with thanks" written on it inside, for some such kindly little acknowledgment is found to be an encouragement to the country helpers, then reverses the card, locks the box, and puts it with the empty cases, which the "parcel cart" will call for by-and-by. It may be mentioned here, how the railway porter who brought one such box to a Mission room every week, at last asked the ladies if they "could spare him a bunch of flowers for his wife," who, it was discovered, had been bedridden for years.

Fetching the Flowers.

But now a step sounds up the stairs, and the boy messenger gravely announces "the gentleman from the workhouse!" Enter the old pauper who fetches the weekly supply for the inmates of the infirmary, a bending old man with a gentle, refined face having a story in it, which would, however, take too long to tell. Fetching the flowers is a great pleasure to him, and he tells Miss F. M. as her fingers swiftly fill his big basket, how the people stop him in the street and ask if the flowers are for sale! The boy adds quaintly that "the children and the very dogs came running to see what he'd got." Miss F. M. smiles and nods, counting her bunches, as the girls pass them to her, and she tucks them in. So many sick being in those great, bare wards, almost any number would be welcome there—winter and spring! As the old man takes up his fragrant burden, a little girl in a red cloak comes in, her blue eyes opening wider at the sight of the flowers. She and a chubby companion have come from an orphanage for some flowers to brighten their schoolroom, and tell them something of what country beauty is. For though the sick people come first, the Flower Mission does not forget the children, who love the flowers so dearly, and these little things come walking some two miles to get their supply. Children and flowers go prettily together, so the baskets get as many small nosegays as they can hold, and the little feet patter away, while Miss F. M. marks down the number of bunches given in her book. One wishes the country children who gathered and tied

these little knots, could see the eager faces of the town young ones, to whom each flower is a treat; but the little senders have their reward, as many a clergyman's wife and school teacher can testify, in the unselfish spirit developed by the simple effort to give pleasure to other people. Now comes another arrival, a bright woman this time, come from an Invalid Ladies' Home, where a little cheering is very welcome. As she gets her flowers, a girl comes to the door, hesitating, shyly, as if not quite sure of her ground, till somebody asks her errand. "Please, m'm," she says diffidently, "I'm going to see my little brother in the — Hospital, and I thought maybe you'd spare me a bunch for him?" "To be sure;" and with a bright, sweet nosegay she goes on her long walk. More boxes come to be unpacked, and one of the girls opens a large hamper and stands aghast at the sight of the more than half dead flowers which it contains: from being badly packed, they have withered on the road, and are a dead loss. This is very grievous, but fortunately does not often happen. Miss F. M. thinks the "individuals," *i.e.* people living in their own houses, may get their flowers now, and this is more interesting, as she, or somebody, can tell something of the people to whom the flowers are going. "Mary Smith, dying of consumption, likes to have the flowers lie on her bed. Mrs. Jenkyns—if you please, Chrissie, find a very sweet one; she's blind, you know," and so it goes on. One request startles a stranger's ear a little. "Now one for the old poet." That sounds as if a story lay behind, and doubtless the old poet has his story, but all that transpires about him is that he is a bedridden old man close by, with a propensity for writing verses, and a great love for flowers. "They're better than five shillings," is the characteristic verdict of the old poet. At last, the basket is made up, and the messenger goes off with his flowers and list of addresses. Then the large hospital of St. Anne sends a capacious basket, into which the finished bouquets vanish rapidly, while the porter who carries it, confides to Miss F. M. that a fellow servant of his has a sick wife, who would be so pleased if he might take her a few flowers; and shortly after, a lady enters, asking if she can take a few to an out-of-the-way institution to which she is bound. One such flower-carrier was once met by a milk girl who looked longingly at the flowers, and then burst out, "Oh miss, do give me a Rose, just one." Of course, she got it, to remind her of the country home she looked back to, with passionate regret.

Odd Facts and Expenses.

Most of the flowers have come now, and the work slackens, and the helpers chat over their nosegays, seeing who can turn the odds and ends to the best account; and the pleasantest little talk springs out of the different supplies from different parts of the country, and odd bits of botanical lore come out, and the various names given to the same flowers get compared. Now, too, Miss F. M. has time to talk to her visitors and tell them anything they want to know, and she has plenty of interesting things to say about treats to ragged school children when flowers were plentiful, how rugged Poor Law officials were softened by the gentle influence, and the dreary work-house chapel was brightened at Christmas time by Holly berries; how one lady exerted herself to procure little "fishbowl" glasses to stand by each bed in one hospital, and little children in the country saved their pennies for this object. A whole bundle of letters is at hand, showing the wide-reaching links which the Flower Mission has created all over the country; one lady telling of the interest her school children take in getting the flowers; another saying how her maids help her to prepare her hamper and get through their work briskly on the "flower day;" and one and all uniting to call their efforts far more pleasure than trouble. Besides we now hear some of the odd little facts connected with the work, as the decided effect produced by the Epsom and Ascot weeks on the supplies, because when all the trains are altered, how can the flowers be delivered in time? And accordingly they come tumbling in at all sorts of hours, and make the manager's life a burden for that day. However, "nothing's lost that a friend gets;" and if the regular places come off badly for once, there are plenty of outsiders only delighted to have a turn, when the delayed boxes come too late for the regular distribution: a messenger goes to such places as firemen and policemen's barracks on

these occasions, to send for the flowers; and it is worth while to see the pleasure of these stalwart guardians of the public peace and order, at the little break in the formal routine of their lives and at "being remembered." Mission rooms, reading rooms, all sorts of stray places get a chance of the over-plus at such times, if they are only within reach. At last, the work is all done, the messenger who always comes for the remains, makes his appearance, and Miss F. M. sees everything finally arranged, empty hampers directed and ready to go back, everything in order, and goes home herself, probably pretty tired. Such is the outline of a Flower Mission day. The principal working expenses of such an organization as the one just sketched, are, the wages paid to messengers and assistants (though in all cases there will probably be a good deal of gratuitous service given, so this is a varying item), the rent of a room, and the carriage of parcels. This last item is the main one, and varies according to whether contributors prepay their packages or not. Many people will gladly take the trouble of sending a weekly box, who could not afford the weekly charge. Two of the great Railways (the Great Eastern and Great Western) generously carry the Flower Mission boxes half-price, which makes a great difference when contributions come by those lines. The empty cases cost 6d. or 8d. to return, so the weekly outlay under this head ranges from 8s. to 16s., supposing the Mission to receive an average dozen of packages. Sometimes country friends utilize an old tea chest, or box of that sort, which need not be returned, and so is a saving to the Mission. When one considers that from one little room go out sometimes 600 bunches and more in one day, the expenditure is not large in proportion to the pleasure bestowed; and stories of how great that pleasure is, would occupy only too much space.

Flowers and Scripture Texts.

One feature in many Flower Missions has been purposely left unnoticed till now, for it cannot be summarily disposed of, and to treat of it leads to somewhat delicate ground. The practice indicated is that of making the flowers a medium for bringing texts of Scripture to the notice of the sick people and others to whom they are sent. This is effected by having small holders or labels of cardboard attached to the bouquets, on which cardboard the texts are written, printed, or illuminated. Various devices are used to make them attractive, or to fasten them to the flowers, but the idea is the same. In some Missions, the number of bunches sent out is calculated by the number of these holders left when the full work is done; and in some it is arranged that the distributor of the flowers reads the text to each person when each nosegay is given. The advocates of this system urge that it is the duty of every Christian to endeavour to bring the Scriptures to bear on all who can be reached by them, and that the flowers give an opportunity of so doing, that the texts are valued and appreciated, and sometimes kept under the pillows of the sick, and it is hoped they make more impression, being, as it were, introduced by the flowers. The Bible Flower Mission, which has many branches in London, is entirely organized on this plan, and there are others in the country and also in Edinburgh. On the other hand, those who keep to the simpler plan of only sending flowers, say that the text system, in practice, comes to the indiscriminate sending of any text to any person whether suitable or not, that it is very difficult to keep any control over the choice of verses, and prevent such mistakes as that of the worthy person who, as it is said, selected "Thou shalt not steal" as an appropriate text to go to a sick child! Again, that such use of detached bits of Scripture is apt to be anything but edifying, unless managed with a discrimination and care almost impossible in the Flower Mission work, and that it ends in treating the Bible like a sort of charm of which any and every bit is equally useful. Another disadvantage incident to this plan is, that it makes the Flower Mission less of a thing in which people of all shades of religious belief can join, and in these days we cannot afford to lose points of union. Further, it is argued that the people to whom most of the flowers go, are in institutions where they have full opportunities for hearing and reading the Bible, and that little is gained by, as it were, pushing it down their throats. The flowers bring their own message, and at the lowest, they tell of the interest

and sympathy of other human beings, although far away and unseen, and this is really felt to a great degree. "It's so nice of people in the country to remember us," said one old sick woman speaking the feeling of many. But the flowers do more than this, they take the people back to their childish days of innocence, only comparative innocence perhaps, but still a softening memory to most, and dull eyes will brighten, and hard faces grow gentle, as man or woman glances back to "when I was a young thing at home and got primroses in the ditches;" while the glad beauty of the flowers speaks home of the power and love of their Creator "who hath made all things well." And so many, including some well acquainted with the practical working of the other system, think that the flowers are both text and sermon in themselves, and that we may leave burning crimson Rose, and heaven blue Forget-me-not, and snow-white Lily to be signs of love, hopes and purity more impressive than any words. It may be considered an exaggerated scrupulousness, but to many minds it does not seem quite the right thing to be preparing religious instruction among the bustle, the inevitable talking, the going and coming of such work as that described above; and it is a positive pain to see sacred words thus misapplied, to pass through careless hands and often be tossed away as waste paper. Another apparently slight, but real objection, is the scarcity of people who can write distinctly enough for uneducated or failing eyes. If, on the other hand, the texts be printed, the expense would be a difficulty, and the personal interest in the work of preparing them, which is now much dwelt on, would, in a great measure, disappear. If the texts be admitted as part of the Flower Mission work, it does seem necessary that some person of judgment and discretion should be told off strictly to supervise the texts received; and also that special arrangements should be made at the place supplied as to the distribution, that it should not all go by chance. It must be remembered here, that not every institution has the means of making such arrangement without entailing more work on those already fully occupied, for the sake of a merely possible benefit. If this side of the matter have been more fully dwelt on than the other, it is because it seems to have been ignored in some publications on the subject. Probably experience will decide which way works best, for we are but young in Flower Missions yet. The first was started in Hull in 1873 by one whose time might have been supposed to be fully occupied, but who found it possible to organize this work which has spread so rapidly. Miss Stanley began it the same year in London, where there are now many branches and depôts. It has been found impracticable to obtain a full list of all the London Flower Missions, but the addresses of as many as have been heard of, from various points, are collected into a list at the end of this paper for the convenience of any wishing to assist in their work.

Hints to Intending Contributors of Flowers.

And now we would make appeal to those who revel in flowers all the year round, whose gardens and greenhouses glow with beauty, to remember their fellow creatures, to whom even a green leaf is a rarity and a treat. It is not money that is asked for, it is only the excess and superfluity, fading away unheeded, which would be so prized; we want to gather up the fragments of the country's feast. It is not, however, only with the rich that the Flower Mission pleads, it is also with everyone who has access to the treasures of wood and field, for the wild flowers are just as attractive if they only come in pretty good condition; and many a charming hamper of such comes to the Flower Mission, whose contents have been gathered and tied up by children. So much pleasure might be given if those who could help in this matter would turn their attention to it and assist in riveting a bond betwixt town and country. They would find it a blessing "both to him that gives and him that takes," for we hear on all sides how the interest and love for the flowers are awakened in country districts by finding out how the half-despised "common things" are valued far away. Is not, also, something gained in quickened and widened sympathies, when people begin to realise the trials and privations of those they do not see, and from realising, go on to trying to help? Is not this the complaint of country dis-

tricts, that their ideas and interests are so limited? Then surely that must be an education, in the best sense of the word, which draws out interest, compassion, and unselfish efforts for those unseen and unknown, living under widely different conditions. A few hints to intending contributors in conclusion. First of all, get full instructions from the Mission depôt you mean to supply, *and keep to them*. This seems absurdly obvious, but it is too often neglected to the great trouble of both parties. As to the packing of the flowers, their case should be well secured, should keep out the air, and not be too heavy. Card-board boxes will not do to go long distances by rail, unless very well secured with brown paper outside and in, for the damp of the flowers softens them and they bulge in, nor do they bear much weight. For small quantities of flowers, or bunches of Violets, for instance, biscuit tins answer very well. As a general rule, the closer the flowers are laid the better they travel, and, above all things, they should not be gathered full blown. However carefully a full-blown Rose or Peony is packed, it is almost sure to fall to pieces when taken out, and is then of no use to anybody; whereas, if the half or less than half-opened bud be gathered, it is easily packed, travels well, and comes out in water to be a thing of beauty for days. All flowers are better gathered in their early stage, though it matters less for Cowslips and Primroses and all of that class. Forget-me-nots are always delightful because they last so long in water, and Daisies travel well; but Buttercups go to pieces at a touch, and the very short-lived wild flowers, as Veronicas and Stellarias, hardly repay the trouble of sending them, they die so quickly. Hawthorns in bud do very well, and Ferns and Grasses are most acceptable, being always useful for making up nosegays. To give any sort of list of flowers is, of course, out of the question; but the mention of a few may be a guide in their selection. Sweet-smelling leaves, such as Sweet Brier and Lavender, never come amiss, and bits of herbs may be mixed with other things with excellent effect. Indeed, when the nosegays are tied up before being packed, which is much the best way for the flowers where it is practicable, it is wonderful to see how much may be made out of the most unpromising materials by ingenious fingers. More particularly in the early spring and closing autumn does this ingenuity display itself, for in the opening season the few flowers to be had are greatly set off by the judicious use of evergreen leaves, or the first green sprays, or the Willow "pussy-cats" so dear to children. Then, when the flowers begin to get scarce in autumn, there is a whole train of leaves and berries which make most attractive nosegays. The brilliant Mountain Ash berries, Braeken Ferns just beginning to turn, deep-coloured Blackberries, even the common Hips and Haws, all combine to replace the flowers. Ivy, leaf, blossom, and berry, is always useful, and, in the places it favours, the ivory-belled, coral-berried Arbutus is a treasure in itself. Of course the Flower Mission can have but limited operations in the winter, but if anybody have any evergreens to spare from church decorations at Christmas time, they would give great pleasure among the many who need all the brightening they can get to prevent the happy Christmas season appearing almost a mockery of their sorrow and suffering. In garden flowers, it is as well to remember that Geraniums will not travel if otherwise than buds, and that Fuchsia heads tumble off if they be very large and heavy. The more delicate Ferns should be well soaked in water before they are packed. Very delicate or very short-lived flowers are not of much use, but within these limits there is hardly anything in the garden which would not be welcome at the Flower Mission depôt. The variegated trees and bushes often grown in shrubberies are very useful, as their leaves set off the flowers so well. If anybody has the means of sending in a basket of fresh-gathered flowers on the distribution day, they will be gratefully received, as the fresher the better, and packing flowers always tells on them more or less. Many people recommend cotton wool as a good thing for packing, and where it can be laid in large sheets at the top and bottom it seems to answer; but generally those flowers come freshest that are packed in a tolerably air-tight box, with a layer of Moss under them, and a few big Cabbage leaves or a sheet of thick paper laid over them. More of these special details can

be obtained from the managers of any of the Mission depôts' whose experience will prove the best guide; and now it only remains for those who have it in their power to bethink themselves whether they cannot do something towards sharing these rich gifts of Nature with others less happily situated? Freely we receive every spring when Primroses and Violets show themselves, and Bluebells come "like a heaven up-breaking through the earth," freely every summer when the Roses blush and glow, freely, too, of autumn gold and winter berries; should we not, therefore, freely give to cheer the weary lives of the sick, the poor, and the lonely?

CONSTANCE O'BRIEN.

The list of all the Flower Mission depôts in London, the addresses of which have been obtained:

- * Home of Industry, Commercial Street, Spitalfields, E.
- * Conference Hall, Mildmay Park, N.
- * Mrs. Raynard's Biblewomen Nurses, 20, Regent Square, W. C.
- * Mrs. Meredith's Prison Mission, Nine Elms, Vauxhall Road.
- * Lamb and Flag Mission, 10, Red Lion Street, Clerkenwell Green. Secretary, Mr. George Soltan.
- * Edinburgh Castle, Rhodeswell Road, Limehouse, E. Secretary, Dr. Barnards.
- * Y. W. C. Institute, 321, Fulham Road, S.W. Secretary, Miss Virgo.
- * 17, South Hill Park Gardens, Hampstead, N.W. Secretary, Mrs. Pitman.
- 14, Nottingham Place, Marylebone Road, Miss Octavia Hill.
- 26, Eaton Square, Miss Rennie.
- 58, Harley Street, Homœopathic Hospital, Mrs. Hale.
- 49, Queen Ann Street, Mrs. Sanderson.
- St. Bartholomew's Hospital, Mr. Jepson, House Surgeon.
- St. Luke's Hospital, Old Street, E. C. The Secretary.
- 18, Conduit Place, Praed Street, Paddington, Miss A. L. Boyle.
- Putney Flower Mission Association. Secretaries, Miss Nelson, Twyford Lodge, Putney.
- Mrs. Barnett, St. Jude's Vicarage, Whitechapel, E.

Those marked thus (*) are in connection with the "Bible Flower Mission."

TEES ON WHICH MISTLETOE IS FOUND.

I CAN endorse "C. E. B.'s" remarks (see p. 145) with respect to the Mistletoe growing on the majority of Apple trees in the orchards of Herefordshire. It grows in abundance on the Aspen; and it may be seen growing upon some Hawthorns in Eastwell Park, Kent, though I do not remember to have seen it growing upon the Apple in that county. There are a few Hawthorns on the side of the drive approaching Ellerton Hall, Shropshire, on which I noticed Mistletoe growing, and though I have not been in that neighbourhood for some time, no doubt it may still be seen there. It also grows upon an Oak in Eastnor Park, Herefordshire, which is the only Oak on which I have seen Mistletoe growing. I find that it is most abundant upon the Apple tree, and rarest upon the Oak tree.—J. T.

— In Forest Hill Park, near Windsor, I have gathered many a goodly bunch of Mistletoe from the Thorn, and the finest berried piece that I have ever seen grew on a Thorn tree in front of the house at Forest Hill. The Lime, too, seems to be a favourite with it in that locality, for on some very tall trees, close to Cranbourne Tower, in Windsor Park, some extraordinary large bunches of it are growing, or were, at the time when I left that neighbourhood, about three years ago. I, however, quite concur with "C. E. B." that the Apple is the tree on which it is found most plentifully in the counties he mentions.—E. F.

— In Stoke Park Mistletoe is very plentiful; right and left of the principal carriage drive it may be seen on the Thorn and on the Lime—most plentiful on the former. On a Damson tree, too, in Richings Park I saw a small plant of it, and a little further off a fine specimen of it on an old Oak. At Stoke Park it grows on the Lime and on the Apple.—T. S.

— Mistletoe grows here abundantly on Apple trees, of which there are numerous orchards in this neighbourhood. It is also found on the Pear, but not so frequently as on the Apple. I have failed to find it on the Oak, although it grows freely on Limes and Thorns.—THOS. COOMBER, *Hendre Gardens, Monmouth.*

— In Savoy I have seen Apple, Pear, and Lombardy Poplar trees laden with Mistletoe, but in this country it is on the Hawthorn that I have noticed it growing most profusely. In Melchbourn Park, Bedfordshire, there is scarcely a tree of the common Hawthorn which does not bear Mistletoe. I never saw it on the Oak, in spite of tradition, and, till now, never heard of any one who had. With respect to "C. E. B.'s" concluding query, two answers are possible—(1) Do not the best antiquaries now agree that Stonehenge and Avebury are the works of a race who preceded the Britons? (2)

May not Oak woods have been cut down, at least in the latter neighbourhood? This I think is, however, improbable, as the Oak does not like chalk.—C. M., *Herne Bay.*

— If "C. E. B.," who writes about Mistletoe, could visit Morehanger, or Muggerhanger, as it is sometimes called, he would find Mistletoe growing freely on the White Thorn, some bushes being so overrun with it that scarcely any of the Thorn was left. To me, however, the most singular circumstance was seeing Mistletoe growing on Roses; in some gardens a basket bed of Roses and Mistletoe was not uncommon; we have it growing here on the Lime; the Apple trees at Morehanger are covered with it.—G. H., *Bedford.*

— Mistletoe may be seen in great quantities in Windsor Park on Poplars, Oaks, Birches, and other trees, but especially on the Thorn, on which it seems to be quite at home. I have seen it growing on Thorn and Apple trees in Kent; I have also once seen it growing as far North as Scotland on an Apple tree in Midlothian.—J. F. S., *Pitcaple Castle, Aberdeenshire.*

Judging Cottage Gardens and Allotments.—"E. H.'s" remarks (see p. 161) are very appropriate, but would it not be desirable to offer one set of prizes for the best kept and best cultivated garden, and another set for allotments? It is difficult to judge both in one class. The system of cropping allotments is different from that of gardens, and necessarily so, for in many cases—in fact, in almost every case that has come under my observation—allotments are a long distance off from the cottages to which they belong, and frequently near woods or plantations, and liable to be overrun with game. They generally contain such crops as Potatoes, Wheat, Beans, Barley, and Oats, and I have often found as many degrees of excellence in the cultivation of these plots as are to be found in gardens; but where the two are brought into competition with one another, the gardens always carried off first, and generally, second prizes. I may mention that in a district competition in 1875, one hundred gardens and seventy-four allotments were entered for competition, the district including many parishes. Altogether forty-four prizes were offered, or four for each parish, and only four were taken by allotments, one second, one third, and two fourths. Such a result made it desirable to make two classes, one for gardens and one for allotments, which was done last year.—J. M.

NOTES AND QUESTIONS—VARIOUS.

La Grosse Sucree Strawberry.—We put fifty plants of this Strawberry in an early Vinery the second week in January, and all but two have thrown up fine, strong trusses of blooms, which are now well set and thinned, and promise to produce fine fruit. The temperature has been higher than what is usually recommended in which to set Strawberries. As the present is a good time for planting strong plants to supply runners for next year's forcing, perhaps this note may be of service.—H. J. C., *Grimston.*

Setting in Peaches and Nectarines.—These have set abundance of fruit, although during the time they were in bloom there were not more than two days' sunshine. During these last fifteen years I have always put a hive of bees in the house when the trees were in bloom, and although both top and front air is left on the bees do not leave the house, doubtless owing to the coldness of the outside air.—RICHARD NISBET, *Aswarby Park, Folkingham.*

Arbutus magnifica.—This is better known than your correspondent (see p. 114) seems to think. It is the best out-of-door shrub which we have in December, and any one who has not got it would do well to procure it at once. It is a plant which withstands cutting well. I use not only its berries, but the flowers, extensively in a cut state, the latter associated well with Poinsettias and Euphorbia jacquinielora, drooping so gracefully as they do over the sides of vases, and the foliage contrasts strikingly with the showy bracts of the Poinsettia.—E. MILLER, *Old Sneyd Park, near Bristol.*

Cutting Privet Hedges.—This is the best season for reducing overgrown Privet hedges, and a good sharp hook with a rather long handle is the best implement to use. Privet will bear cutting into the hard wood now, and will soon break and become green again. It being a strong-growing and rooting plant, rather strong measures are required occasionally to keep it within bounds.—E. HOBDAV.

Holly Berries.—In the winter of 1875-6, quantities of Hollies were moved from one part of the ground here to another, and, singular to say, those that were undisturbed did not produce a berry, while those that were transplanted became loaded with them. I should mention, however, that all those that bore berries were barked by rabbits, but that those on which there were none were not touched. I have not the least doubt that the removal induced fertility, and the circumstance tends to show that ringing or half-ringing has the same effect.—N. F. FULLER, *Oakham.*

Cure for Bleeding in Vines.—Mix up flour and water to the consistency of a piece of putty, and apply it to the cut surface, tying a piece of cloth over it; this with me has proved an effectual remedy.—N. J. G.

The Late Mr. Ormson.—We are informed that the business of horticultural engineer, and manufacturer of hot-water apparatus carried on so successfully by the late Mr. Ormson, at Stanley Bridge, Chelsea, will be carried on as heretofore under the same name.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

MARCH 7.

THIS meeting, like the last, was held in the large conservatory itself. Just now an attractive promenade—a fine tree of the scarlet-flowered Indian *Rhododendron arboreum* being in great beauty, as well as other smaller decorative plants, the whole intermixed among masses of Tree Ferns, Palms, and other vegetation, which formed an agreeable background to the beautiful groups of Orchids, *Cyclamens*, *Cinerarias*, *Amaryllis*, and other plants, contributed so profusely both by amateurs and nurserymen. Messrs. Veitch & Sons sent a choice collection of hybrid and other Orchids, new seedling varieties of *Amaryllis*, Ferns, Palms, and other decorative plants. Mr. B. S. Williams and Mr. Wills also furnished good miscellaneous collections of ornamental plants; and a fine display of *Camellia* blooms, contributed by Mr. W. Paul, of Waltham Cross, was much admired; Mr. Turner likewise showed *Camellias* and a group of scarlet-berried *Aneubas*. Mr. Michaels exhibited a collection of *Phalenopsis* and other Orchids; as did also Sir Henry Peck and Mr. W. Terry, of Peterborough House, Fulham. Some *Cinerarias*, shown by Mr. F. Watson, of Isleworth, were remarkable for brilliancy and novelty of colouring.

First-class Certificates.—These were awarded to the following new or rare plants:—

Perpetual-flowering Carnation, Rose Perfection (Turner).—This is a free-growing variety, which bears well-formed rosy or cerise flowers, very rich and striking in a young state. For decorative purposes or cut flowers, it will doubtless be a valuable variety.

Perpetual-flowering Carnation, Gueldres Rose (Turner).—A free-growing variety, bearing very full white flowers. Like the last, it will be useful for winter and spring-blooming indoors, or for cut flowers.

Rhododendron Taylori (Veitch).—A vigorous and free-flowering greenhouse hybrid belonging to the *R. jasminiflorum* and *Javanicum* section, and bearing clusters of wax-like, rosy-lipped flowers, the long tubes of which are white. Like those of the other varieties of this section of *Rhododendron*, the plants flower several times in the course of a season, and succeed well in a warm greenhouse temperature.

Eurycles australasia (Veitch).—This plant, popularly known as the Brisbane Lily, bears erect, umbellate clusters of pure white, *Hæmantis*-like flowers on a short scape; the leaves, which attain their full size after the flowers have faded, are large and similar to those of some *Funkias* in shape, but of a fresh and pleasing shade of pale green, as bright as if varnished. The plant grows and flowers freely, and will be especially useful for decorative purposes or for cut flowers.

Osmunda palustris (Veitch).—This is an elegant-habited species, the soft green, brownish-red-tinted fronds of which remind one of those of *Adiantum tinctorum* in colour. They measure from 15 in. to 18 in. in length, and are tripinnate, the smaller divisions being oval or ovate, and nearly 1 in. in length. The plant grows freely, and well deserves attention.

Dracæna terminalis alba (Wills).—An important acquisition, having quite the habit and character of the well-known *D. terminalis*. The leaves are lanceolate, the ground colour bright green, with bold, pure white variegation, the upper leaves being white, with here and there a stripe of green, and, in some cases, large patches are coloured white, while the rather elongated leaf-stalks are also edged with white. It will be a useful variety for general purposes.

Cineraria, Mary (James).—This, perhaps, is the most perfect *Cineraria* hitherto raised, the petals being broad and smooth, and the whole flower circular and of great substance. It is one of the very few seedling *Cinerarias* we have yet seen worth naming. Its colour is a silvery rose.

Cineraria, Thomas Winter (James).—A rich maroon-purple, self-coloured variety like the last, but not quite so perfect in petal and outline.

Azalea, Mrs. Carmichael (Williams).—This is a cross-bred plant, closely resembling the well-known *A. amoena* in habit of growth. The flowers, which are freely produced, are much larger than those of the last-named sort; they are of good form, more than 1 in. in diameter, and of a rich lilac-purple colour. This variety is a welcome addition to early-flowering *Azaleas*, and one which will also be useful for forcing.

Dennstaedtia davallioides Youngi (Veitch).—A vigorous-growing Fern of a somewhat creeping habit, the ample bright green fronds of which are 4 ft. in height, and finely cut into slender pinnæ. It promises to become useful for general decorative purposes.

Dendrobium crassinode Barberianum (Sir T. Lawrence).—A richly coloured form of the thick-jointed *Dendrobe*, the sepals and petals of which are tipped with rich magenta carmine instead of lilac as in the typical species. It was imported by Messrs. Low & Co., of Clapton.

Miscellaneous Plants.—From Messrs. Veitch & Sons came a select collection of Orchids, including a unique specimen of the hybrid *Laelia Veitchii*, several other hybrids, and a group of new hybrid and seedling *Amaryllis*; also a remarkably well-grown group of crimson, purple, and white

Persian *Cyclamens*. Among the Orchids we noted *Odontoglossum trinophanum*, with slender five and seven flowered spikes of golden-brown blotched flowers; the golden-lipped *Oncidium varicosum*, *Masdevallia chimera*, the pure white *Lycaste alba*, and several varieties of *L. Skinneri*; a plant of the fresh green-leaved *Bletia hyacinthina*, an old Chinese terrestrial Orchid, bore six or eight spikes of vivid purple flowers or buds. Among the seedling *Amaryllises*, one named *Junius* was especially noticeable as having the vivid crimson-scarlet colour of *A. Ackermannii pulcherrima*, and in being moreover of a much better shape. *Clio* (scarlet) and *Thalia* (reddish-crimson) are also desirable kinds, which received certificates last season. *Lily Musgrave* deserves notice as being a well-formed flower of a soft red colour with a greenish ray. Sir Trevor Lawrence, brilliant *Crimson*, well deserves a place in the most select collection. *Constance* and *Madame Titien* are likewise two of the best of the lighter-coloured kinds. Mr. Newman, gardener to Mr. W. H. Michaels, Cholmeley Park, Highgate, sent a group of *Phalenopsis*, among which were good examples of *P. Schilleriana*, *P. amabilis*, and *P. grandiflora*. *Dendrobiums* in this collection were represented by *D. thyrsoiflorum*, with white sepals and petals, and a yolk-of-egg coloured lip; a large and richly-coloured form of the Trumpet *Dendrobium* (*D. lituiflorum*); and a well-flowered but pale-coloured *D. crassinode*. The chaste little *Colax jugosus* was represented by a small-flowering plant, the sepals of which are pure white, and the petals white, barred or spotted with brownish-purple, the trowel-shaped lip being blotched with purplish-blue. Perhaps the most singular Orchid in this group was the old but rare *Houlletia Brocklehurstiana*, a plant having the ovoid, fluted bulbs and plaited leaves of a *Gongora*, and a pendent spike of five and six rich brown and purple flowers. Mr. Ollerheal, gardener, Wimbledon House, sent a miscellaneous group of Orchids, among which we noted the *Barkeria*-like *Epidendrum non-inense*, bearing slender spikes of lilac-speckled flowers. Two or three excellent varieties of *Phalenopsis Schilleriana*, *Dendrobium lituiflorum*, with from forty to fifty rich purple and white flowers, and a richly-coloured variety of *D. crassinode* named *Barberianum*. Mr. W. Terry sent a small group of Orchids, among which was a very large-flowered form of *Cymbidium eburneum*, also three plants of *Vanda suavis*, *Oncidium serratum*, *O. sarcodes*, and the graceful old green-sepalled, white-lipped *Brassavola venosa*. Mr. Petridge, of the Boston Park Road Nursery, Brentford, showed a large-flowered *Cyclamen persicum* named *magnificum*, the flowers of which are white, and the base of the petals carmine. Mr. Charles Turner sent a well-grown group of white *Camellias* in flower, associated with well-berried plants of the green-leaved *Aneuba japonica vera*, and also a box of cut *Camellia* flowers, including twenty-four of the best white, rosy, crimson, and striped kinds. Messrs. W. Paul & Sons, of Waltham Cross, sent twelve stands of cut *Camellia* flowers, comprising about seventy varieties. Mr. James, gardener to W. F. Watson, Esq., of Isleworth, contributed a collection of dwarf, well-grown, large-flowered *Cinerarias*, the most striking colours being purple, maroon, blue, rose, lilac, either self-coloured or in combination with more or less white in the petals. This strain is certainly a most desirable one, the plants being especially dwarf, and the flowers excellent in form. A specimen of *Dendrobium Pierardi* was shown from the Duke of Westminster's garden at Eaton Hall, near Chester, and was universally admired, it being one of the finest examples of this beautiful Orchid ever exhibited. It bore eighteen wreath-like pseudo-bulbs, several over 4 ft. in length, and bearing no fewer than 114 flowers. A large and varied group of seedling *Primroses*, *Polyanthuses*, and *Myosotis dissitiflora* (little tufts in 48-sized pots, thickly studded with pink and blue flowers, each flower being from one-third to half-an-inch in diameter), was contributed by Mr. R. Dean. The soft lilac *Primula denticulata* was also well represented in this group, as was also its larger and deeper-coloured variety, *P. purpurea*. Messrs. Paul & Son, Cheshunt, sent flowering plants and young growing specimens of *Fortune's Yellow Rose*, and also plants of the variety which has been named *Beauty of Glazenwood*; in foliage and flower, however, both varieties are identical in every way, a decision unanimously arrived at by the Floral Committee. Mr. John Wills exhibited six of his new seedling *Dracænas* in excellent condition, the varieties being *D. Elizabethæ*, *D. salmonæ*, *D. Gladstonei*, *D. Rebecca*, *D. Sidueyi*, and *D. terminalis alba* (to which a first-class certificate was awarded). Mr. Wills also contributed a large miscellaneous group of decorative plants, consisting of Ferns, Palms, Orchids, *Azaleas*, &c., gracefully fringed with *Isoplepis gracilis* and creeping *Ficus*.

Fruit.—Messrs. Thomas Rivers & Son, Sawbridgeworth, sent large, shapely, and highly coloured Oranges of home growth, the varieties being *St. Michael*, *Maltese Blood Orange*, and the *White Orange*. Mr. E. Bennet, of Ribley, showed a punnet of *Gairibaldi* Strawberries of excellent quality, the fruit being large and highly coloured.

Rhododendron Exhibitions.—We understand that the Hurlingham Club has made arrangements with Messrs. John Waterer & Sons, of Bagshot, to hold an exhibition of *Rhododendrons* in the gardens at Hurlingham house, Fulham, during the month of June next. Mr. Isaac Davies, of Brook Lane Nursery, Ormskirk, has also arranged to exhibit his sweet-scented *Rhododendrons*, *Azalea mollis*, and other plants, at the Winter Gardens, Southport, at about the end of the present month.

Horticultural Societies.—Following the example of the Belgians, the Italians propose combining the chief horticultural societies of the kingdom into a Horticultural Federation, and to hold periodical exhibitions at Milan, Venice, Florence, Turin, Naples, Rome, and Genoa—the first to take place at Milan in 1878, the second in Florence in 1880.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES OF THE WEEK.

IRIS RETICULATA AND ITS SEEDLINGS.—In reply to "H. M." I do not know that I can add much to the replies published in your last number, except to warn cultivators of this beautiful plant not to grow it in light soil, as it evidently likes a good substantial loam. My soil is almost more than a substantial loam, and it grows and increases here in a very wonderful way, and I do not find it so short-lived as your correspondent seems to do. If forced the process should be very gentle, not giving it more than warm greenhouse treatment. My object in writing this is to give a caution much needed by many amateurs, and I fear many professional gardeners as well, about the treatment of bulbs and tubers. After the flowering period, the pots are often stowed away under stages, or set out on the ground in any out-of-the-way place, and get thoroughly neglected, "dried off gradually" according to "H. M.'s" practice, but very frequently by a more rapid process—destruction must be the result of any but a natural treatment. When such plants are growing out-of-doors there is no gradual diminution of the water supply, nor should there be when the plant has the disadvantage of growing in a pot; on the contrary, a full supply of water and careful management should be given till the foliage dies away. I would recommend growers of *Iris reticulata* to look carefully after seed, and to raise as many seedlings as they can: I am blooming a small batch of them this spring. No two are alike, and none of them resemble the parent closely; two of them are so distinct that they are worth increasing and cultivating as garden varieties.—J. G. N.

THE NEW SCARLET WINDFLOWER.—This, which we this week figure, is a finer plant than the plate gives notion of, many of the plants as yet in culture being young and weak, and from one of such our plate was prepared. In the garden of M. Henri de Vilmorin (to whom we are indebted for the remarks that accompany the plate) there are several thousands of the plant in various stages. During the past week we have seen flowers from this garden measuring 4 in. in diameter and even more. It may be added, that the plant is distinct from any of the varieties of the old garden *A. coronaria*.—R. N.

MARCH IN MONTREUIL.—In this village of Peach-growers, the pruning of the trees is now being carried on, and will not be completed before another week is past. The trees are scarcely in flower yet, though some kinds have opened their blooms. They are all protected by a wide temporary coping of boards or of straw mats. In M. Chevallier's garden interesting and apparently successful experiments are being carried out in half-breaking across shoots and branches with the view of inducing a healthy growth below the said break. In this way M. Chevallier says he gets surprising results—the very kind of fruitful shoots he desires. In many cases where we would remove a shoot, it is slightly cut, and then broken half through. Good growths start from below the break, while perfect fruit is gathered from above it.—J.

NEW DOUBLE WHITE EPACRISSES.—Two plants of double-flowered Epacrisse, which are now in bloom in Mr. Ball's nursery at Chelsea, deserve notice on account of their great beauty. The two forms differ in size, and slightly in the colour of their perfectly double flowers, and although the larger-flowered, pure white form is by far the most effective, both well deserve culture. In the smaller-flowered plant the blooms are white, delicately flushed with rose. Both kinds appear equally vigorous in habit, and doubtless are varieties of *Epacris onosmodora*, the colour of which in the normal or single-flowered condition varies from pure white to rosy-purple; hence the variation of colour shown by these new double forms is not surprising.—B.

SEEDLING HIPPEASTRUMS.—An attractive collection of seedling *Hippeastrums* is now in flower in Messrs. Veitch & Son's nursery at Chelsea. These are mainly the result of cross-fertilizing such kinds as *H. Ackermannii pulcherrimum* (which for brilliant colour is unrivalled), *H. pardinum*, and *H. Leopoldi*, and among them are some well-shaped and brilliant forms. One of the best is certainly *Janins*,

a kind which retains much of the colour of *H. Ackermannii*, added to a superior breadth and smoothness of petal. *Hippeastrums* are so easily grown and forced into bloom at almost any period of the year that no collection even of ordinary decorative plants should be without them.—B.

SEEDLING CINERARIAS.—Messrs. F. & A. Smith, of Dulwich, have sent us a remarkable collection of *Cineraria* blooms, many of which are well-nigh perfect in outline, breadth, and smoothness of petal, and in richness and variety of colour. Among other variations we observed some white-eyed flowers, in which the marginal colouring was shaded as in the Alpine *Auricula*, an innovation which adds much to the finish and delicacy of the blooms.

GESNERA HOUTTEI.—Quantities of plants of this *Gesnera*, which was raised at the Wellington Nursery a few years ago, are now flowering profusely at Pine Apple Place. The flowers, which are long and tubular, are brilliant crimson, and, unlike those of other *Gesneras*, last in good condition on the plant for a considerable time in a cool airy house. For conservatory ornamentation this plant is deserving of extensive cultivation; it is easily managed, excellent in habit, and when furnished with clusters of from forty to fifty buds and flowers on the point of each shoot, unsurpassed as regards effect at this season of the year. After flowering, the plants may be moved to any out-of-the-way place in a cool-house or pit; and if a few of the bulbs be shaken out, potted, and placed in a warm temperature in succession, they will produce handsome plants laden with bloom from January to May.—J. S.

DOUBLE-FLOWERED CHINESE PRIMROSE.—We have received from Mr. Gilbert, of Burghley, a boxful of these popular flowers—all good, but two unusually large and double. One is a full, smooth-petaled flower of snowy whiteness, $1\frac{1}{2}$ in. in diameter, and frilled around the margin. The other is a similar flower in all respects but colour, which is of a clear rosy tint. Either for decorative purposes or cut flowers these are well worth careful culture.

GUELDER ROSES FOR FORCING.—Few hardy shrubs are more ornamental at this season than well-grown specimens of the common Guelder Rose, when laden with large, drooping, snowball-like blossoms. Plants in 8-in. or 9-in. pots may have been seen in this condition for a long time past in the Exotic Nursery, Chelsea, each bearing upwards of twenty large and well-formed clusters of blossoms. Messrs. Veitch use these plants chiefly for room decoration, a purpose for which they are well suited, as they look well under gas-light. The blossoms, too, last for a considerable time in good condition in a cut state.—C. S. W.

GREEN PEAS.—These are now seen on every stand in the Paris market, and are very cheap, from 1 fr. the litre (shelled) to 4 fr. for the smallest and freshest Peas which come from Toulon. Generally, the Green Peas seen at this season in the Paris market come from Algiers. They have been abundant there for the past six weeks; one could wish they were equally abundant in London.—V.

PULMONARIA AZUREA.—This is a very handsome spring-blooming kind, which produces large clusters of showy flowers on dwarf rigid stems. The flowers when they first open are dull red, gradually changing to light blue, and then to a lovely deep blue—about the colour of *Myosotis azorica*. In the course of a few days this *Pulmonaria* will be in full beauty in the York nurseries, where I have seen it grown in small pots, forming complete masses of flower, resembling a dwarf *Forget-me-not*. It is a very easy plant to cultivate, and will grow in almost any kind of soil, but is prettiest when grown in a rather poor, dry, and hard soil. It may be planted in sunny or shady positions; as it will grow equally well in either situation.—R. P.

ORCHIDS IN BLOOM AT TWICKENHAM.—The Orchid-house in the gardens at Poulett Lodge, Twickenham, is now very attractive, containing, as it does, many large and healthy well-flowered specimens. Amongst these may be mentioned a plant of *Dendrobium Primiinum* growing in a basket, with five or six strong stems, each bearing from fifteen to twenty delicately coloured blossoms. D. Pierardi, growing in a suspended basket, is furnished with scores of long, thin, pendent stems, clothed with multitudes of delicately tinted greenish-white flowers; D. Wardianum, with from forty to fifty blooms; and numerous plants of *Phalænopsis grandiflora* and *P. Schilleriana* are bearing spikes with upwards of fifty flowers of unusually large size, many of them measuring as much as 4 in. across the petals. These, associated with the gracefully-drooping foliage of *Cocos Weddelliana* and *Seaforthia robusta*, have a good effect. Large plants of *Dendrobium nobile* and *D. corulescens*, grown in deep pans, are each bearing no fewer than 200 fully expanded blooms, and, being arranged singly on the stages of the house, are remarkably attractive. *Lælia anceps* is also in very good condition, strong healthy plants of it bearing from ten to twelve long

drooping spikes, each surmounted by five or six large, rich, violet-coloured flowers. In addition to the above, *Dendrobium chrysalinum*, *D. sanguinum*, *D. Cambridgianum*, and *Anthurium Scherzerianum* are also flowering freely, and are in excellent condition. The Orchid house here is painted green, a colour which contrasts well with the bright flowers.—C.

GNIDIA PINIFOLIA.—This useful, old-fashioned, hard-wooded, greenhouse plant, though seldom seen in good condition in private establishments, nevertheless, well deserves a place in every garden in which spring-flowering plants are required for conservatory or greenhouse decoration. Numbers of it in Messrs. Rollisson's nursery are now producing a profusion of trusses, consisting of small, white, deliciously-scented blossoms; they commenced blooming three or four weeks ago, and will, in all probability, last in good condition until the end of April. Unlike many hard-wooded plants, this, under ordinary good culture, never fails to flower freely from every shoot.—W. S.

ABUTILON DARWINI TESSELLATUM.—This is without doubt the best of all the Abutilons for growing in 6-in. pots for the decoration of the conservatory, or as table plants. Cuttings of it struck in the autumn and potted on make handsome little plants by January or February. It is grown in this way at Poulett Lodge, Twickenham, where several dozen plants of it, from 12 in. to 15 in. high, and as much through, are literally laden with bell-shaped, ochre-coloured blossoms, the latter forming a fine contrast with the yellow and green tessellated leaves.—W.

SAXIFRAGA CRASSIFOLIA IN POTS.—This forms an admirable plant when flowered in pots, as it may now be seen in the greenhouse at Kew. The flowers, which are produced in great profusion, are more delicate in colour, and the trusses much larger than those on plants in open borders. Strong plants of it, lifted in autumn, potted, and gently brought on in a cool frame or pit, might be had in flower from soon after Christmas until the end of March, with little or no trouble. The white-flowered variety of *S. crassifolia* would be especially valuable, grown in this way.—S. W.

DENDROBIUM WARDIANUM LOWII.—This may now be seen in great beauty and profusion at Tretham, where, suspended from the roof of a high lean-to-house, the stems of a large quantity of plants laden with floral treasures dangle amidst Palms, Pitcher Plants, and Ferns. This is the best way in which to show off the beauty of this species of Dendrobe to advantage. Scarcely less beautiful, too, is the variety of *Dendrobium crassinode* called *Barberianum*. This, in the same house, is furnished with a wreath of blossoms some 2 ft. long.—S.

INDOOR CLIMBERS IN FLOWER AT KEW.—It may interest some to know what plants are at present most attractive on the roofs of houses at Kew, inasmuch as at this time of year good flowering climbers are comparatively scarce. *Bignonia purpurea*, a plant seldom met with anywhere but at Kew, is well worth cultivation, for the sake of the bright purple and striped trumpet-shaped blossoms which it produces in large quantities in a warm temperature; *Clerodendron volatile* and *C. speciosum* are also just now flowering freely here, the former producing large trusses of creamy-white, and the latter rosy-pink, blossoms; *Euphorbia splendens*, trained up the roof of the Cactus-house, is strikingly attractive, being furnished with hundreds of bright scarlet blossoms; *Bomarea Caldesii*, twining up some trellis-work at the end of one of the houses, is laden with large clusters of bright, *Alstromeria*-like blossoms; and the old but highly ornamental and useful *Kennedyia rubicunda* is thickly beset with showy, blood-red, Pea-shaped flowers; *K. ovata rosea* is also in equally good condition, and the blossoms of both are valuable for button-hole or other small bouquets. The white, star-like blossoms of *Clematis indivisa* are still being borne by hundreds on multitudes of long, pendent, wiry stems; for covering the roofs of cool greenhouses, and for producing a profusion of gay flowers during the winter and spring months, this *Clematis* is excelled by few plants. *Lonicera sempervirens*, too, a valuable plant, is well furnished with scarlet, orange-tipped, tube-shaped flowers, which are produced in large trusses from the point of every little shoot; for trellised walls of greenhouses, this is a valuable plant, but for roof drapery the shoots are scarcely sufficiently graceful.—S.

SUBJECTS FOR TRIAL AT CHISWICK.—The Council of the Royal Horticultural Society propose, instituting at the Chiswick Gardens, this season, under the direction of the Fruit and Floral Committees, comparative trials of the following subjects, viz., Vegetables—Tomatoes, Cabbages, Savoys, Turnips, New Peas, and New Potatoes. Flowers—Euphrasies, Gloxinias, Begonias, Cannas, new Zonal Pelargoniums, Stocks, Asters, and new annuals. Fellows of the Society and those desirable to contribute subjects for this purpose will please communicate with the Secretary, or Mr. Barron, superintendent, at the Royal Horticultural Gardens, Chiswick.

HERBACEOUS PLANTS SUITABLE FOR BEDS.

It is impossible with such a mass of flowers as beds of *Campanula carpatica* (see p. 152) produce, to keep picking off daily all fading blooms, which one can manage in the case of individual plants of this and other *Campanulas* in the mixed border, and there is no doubt by so doing a certain amount of bloom is kept up to the end of the season, still not to compare with the mass of bloom produced in early summer; and for autumn I think many will turn to a bed of *Lobelias* or blue Pansies. For those, therefore, who must have a quantity of flowers in autumn, I would suggest our plan of planting thickly between the clumps of *Campanula*, *Colchicum autumnale*, one bed of the lilac, another of the white or the double varieties, or mixed according to taste, and clipping over the *Campanula* neatly with the shears, thus removing all flower-stalks, and having a completely new bed for autumn. The *Colchicum* leaves are at present a great improvement to the beds—fresh and green, 4 in. high, while the *Campanula* is just showing above the soil. I do not deny that the fading leaves of the *Colchicum* are an eyesore for three weeks, but we put up with that necessity, and on no account remove them until ripe. *Campanula Hostii* and others of that growth, we find very persistent bloomers, and the erect-growing stalks are more quickly removed than those of *C. carpatica* or *turbinata*. All blue seedlings of this latter that I have seen are inferior to the true plant, and our practice is to increase our plants by tearing up the roots of the original stock. *A propos* of *Colchicum* planting, I had a charming arrangement—a narrow border (78 ft. long) of *Helleborus angustifolius*, edged with the double lilac *Colchicum*, but the border was within the reach of Willow trees, and the *Colchicums* were hopelessly covered with their intolerable, small leaves, for which there is no remedy. The *Hellebores* were, of course, all right, as they flowered long after the leaves were down and away; and I mentally resolved only to plant autumn-flowering bulbs in open quarters away from trees, which is their natural habitat. A bed really worth seeing is one of *Oenothera missouriensis* or *O. macrocarpa* (the red-spotted calyx of the latter makes it best) edged with a broad band of *Campanula carpatica*. It is faultless; but we cannot get a stock of the *Oenothera* now-a-days. Twenty years ago we gave away hampers full of them from our beds, unplaiting the roots, which never required to be cut; young plants came away of themselves, and by re-planting the parent roots, our beds were as full as ever. Now I can neither give nor get anything but cuttings, which somehow never come to any good, and two or three plants in the mixed border are not satisfactory; such sprawling growers look much better in a mass. Our last work, regularly at 6 o'clock p.m., was to pick over these beds, removing the seed-vessels as well as the faded flowers; it was tiresome, but absolutely necessary to keep them as they were—the admiration of all who looked on them. Blue branching Larkspur makes a much more persistent bed (of course, not letting it seed) than any of the herbaceous *Delphiniums*, which, although flowering twice, require a long interregnum to produce a second crop.

F. J. HOPE.

Wardie Lodge.

Judging Allotment Gardens.—I have read with interest the remarks on this subject (see pp. 161 and 203). We have a Cottage Garden Society in this parish which seems to succeed well. The cottage gardens and allotments are judged separately about the middle of July by judges selected from the adjoining parishes. The vegetables must not exceed a certain number—say ten or twelve; to each sort so many points are given—for a first-rate crop, three; second-rate, two; ordinary, one; inferior crops are disregarded, the prizes being awarded according to the number of points. These competitions have been a great encouragement to the cottagers, both allotments and gardens being remarkably well managed. Flowers are also taken into consideration. Good general vegetables only are grown, Potatoes being the principal crop; no corn of any kind is cultivated: there is no restriction with regard to it, but it would not pay. This being a large parish, consisting of upwards of 9,000 acres, the allotments are in four or five different places for the convenience of the cottagers.—JOHN GARLAND, Killerton, *Essex*.

Dandelion.—Notwithstanding the abundance of delicate cultivated salads in the Paris market, the common Dandelion is as abundant there as any other, and is even sold at as high a price as some of the cultivated salads.—V.

THE FLOWER GARDEN.

EARLY PERSIAN IRIS.

(*I. PERSICA*).

A WEEK or two ago we received fresh and beautiful flowers of this plant from a warm sandy garden in Surrey, together with the information that the bulbs were planted six years ago, and that they had flowered every year since. This Iris is one of the most attractive and distinct of all the early-blooming kinds, and it is one which well deserves a place in all collections where the soil is warm and dry. The annexed sketch represents a flower of it, natural size, and also a bulb and foliage. Its blossoms, which are produced from a tuft of bright green leaves that just peep above the soil, are white suffused with a pale Prussian blue tint, the broad ends of the fall petals being blotched with velvety purple, a colour which contrasts well with the golden yellow keel. This Iris is a native of Persia, and has long been in cultivation in this country, although like nearly all the other bulbous species it is not very plentiful. Singularly enough it was the first plant figured in the "Botanical Magazine," whence we learn that the best bulbs of it at that time were imported from Holland, and that they flowered well in glasses of water, or better still in pots of moist sand or sandy soil. About two centuries before the plant was figured, however, in the "Botanical Magazine," Parkinson alludes to it in his "Paradisus" (1629), as being cultivated in his time, but states that it rarely bloomed. If bulbs be still obtainable from Holland at a cheap rate, this plant well deserves indoor culture, inasmuch as its delicately coloured, and agreeably fragrant flowers would associate well with those of other forced bulbous plants. In habit of growth this species very closely resembles *I. colchica*, and one or two others of the winter and spring flowering bulbous Irises, and these may be grown along with it on well-drained sandy soils. In its native habitats in Asia Minor, *Iris persica* is found at an elevation of 6000 ft. One of its allies, *I. canasica*, is just opening its honey-coloured flowers in a garden at Tooting, and is harder than *I. persica*, although from nearly the same region, where it is found on the mountain slopes at from 7000 ft. to 8000 ft. above the sea level. *I. alata*, another near relative, flowers in December, and is a very pretty species to which we alluded in Vol. X. of THE GARDEN, p. 579.

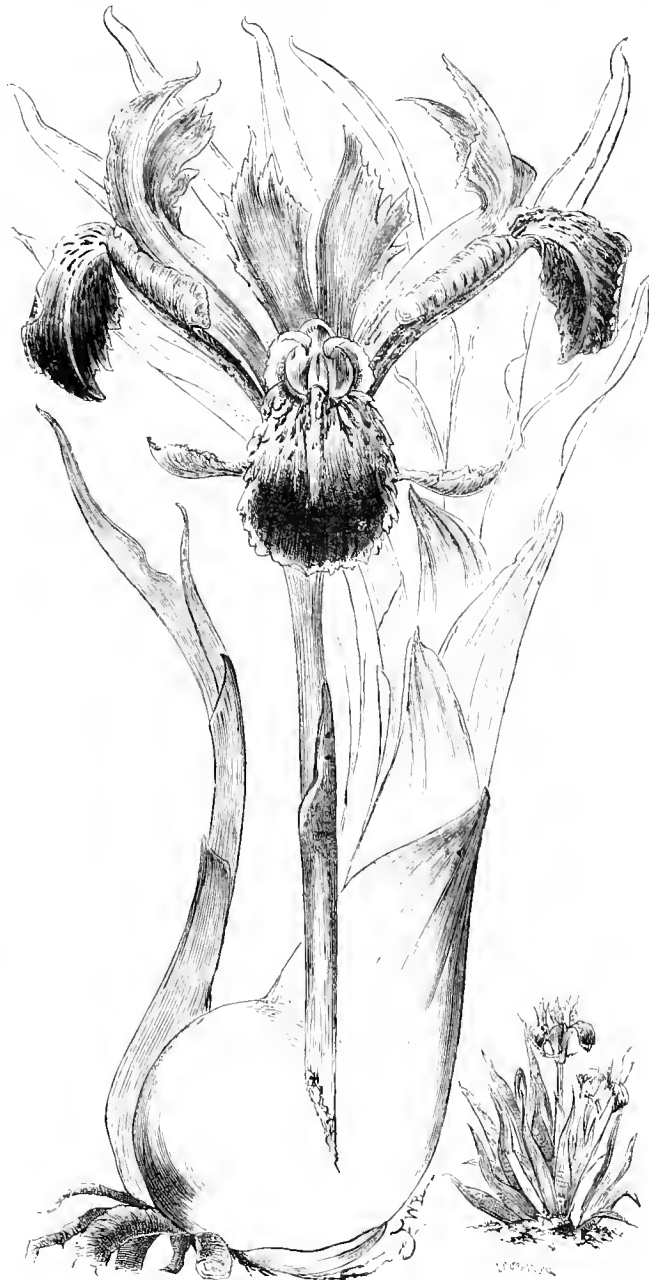
B.

SNOWDROPS.

In your article on the genus *Galanthus* (see p. 194) you have omitted to notice at least two species or varieties, one of which is said to be by far the finest of the whole. It was described in a paper read at the Botanical Congress at Florence in 1874, and was recently published under the name of *G. Regina-Olgæ*, and is found in the mountains of northern Greece, where it flowers in autumn. *Galanthus Redoutei* is another variety from the Caucasus, which I received from Dr. Regel, of St. Petersburg, and flowered this winter, but not in a strong enough state to enable me to form an opinion as to its distinctness. I would also point out that neither the figure nor description of *Galanthus Elwesi* in THE GARDEN gives a good idea of the plant. Though its scape, flower, and leaves are not quite so long as they are in *G. Imperati*, it cannot be called dwarf. It is distinguished by its very globular flower, which is twice as broad as that of *G. Imperati*, and by the green base of the inner segments, which show between the outer ones. The leaves are also very glaucous, and can be distinguished at a glance from those of any other Snowdrop. The bulbs which Mr. Barr had, being weak and starved, did not bring their flowers to perfection, as will easily be seen by examining the plate in the "Botanical Magazine," which represents the plant very fairly. I very much doubt whether *Galanthus Imperati* has any character except size by which it may be separated from *G. nivalis*, though from a horticultural point of view it is distinct enough. The *Ornithogalum* from Asia Minor, mentioned (see p. 190) as flowering in Mr. Barr's grounds, is probably *O. fimbriatum* (Bot. Mag., 5077), which has been in bloom here for weeks.

H. J. ELWES.

Preston, Cirencester.



Early Persian Iris (*I. persica*).

Cheilanthes odora.—Plants of this little Fern, when well established and the fronds fully developed, are beautiful objects. Its general aspect reminds one of the North American *Cystopteris bulbifera*, but it is both dwarfer and more compact; the fronds, too, are evergreen, which adds greatly to its usefulness. Although the odour of this lovely little Fern is not always perceptible, yet at times, especially early in the morning, when removing the frame-lights, the perfume is, though delicate, most delicious. I have found it to thrive best planted in a compost of loam, peat, and small pieces of stone (smashed granite), with the addition of a small portion of white sand; it is doubtless a sun-loving plant. Three varieties of it have been found in Southern Europe, on elevated regions, growing under overhanging ledges of rock, with a south aspect. Those that have

succeeded best with me are grown in pots in a frame facing the south and fully exposed to the sun's rays, but with little air admitted. I may just add that plants of it have been exposed throughout the winter on the rockwork at York, and have not sustained the slightest injury.—R. P.

YUCCA PICTA AND ITS SEED-PODS.

UNDER this name I received, a few years ago, a plant from Belgium, described in the catalogues of 1877 as "having a large stripe of pale green in the centre of each leaf." It appears to be a dwarfish variety of *Yucca aloifolia variegata*, the foliage being dark green with a stripe through the centre less conspicuous and clear than in *Y. aloifolia variegata*. Its habit does not appear nearly so free and vigorous, although I have kept it in a small pot for want of space. Standing out in a sunny position in the open air during the past summer, I was somewhat surprised to see that it was throwing up a flower-spike; in the course of a week or two, three or four of the flowers were expanded, there being only about a dozen in all; it appeared rather distinct, having yellowish-white blossoms, but nothing peculiar to make them of very particular merit. Some days afterwards, on examining the plant again, I found it had four seed-pods, then already nearly 1 in. long; although the *Yuccas* seed abundantly in the Southern States, I had never before observed any seeds upon the same kind. *Y. filamentosa*, cultivated in abundance everywhere, flowered with me for more than forty years; and as I had just read Mr. Hemsley's account of all the *Yuccas* in 'THE GARDEN' (Vol. VIII., p. 129), and noticed his remarks in regard to the seeds rarely being seen in English gardens, it occurred to me that a brief notice of this species or variety might not be unacceptable to some of your readers. Mr. Hemsley states that the "most readily seized characteristics for distinguishing the species are furnished by the leaves, and particularly by the seed-vessel, but as the latter is rarely seen in this country it may be put on one side altogether, and we must rely upon the differences in the leaves and such other characteristics as are seen and understood." I therefore give a description of the seed-pod of *Y. picta*. When fully developed it is 3 in. long and 1½ in. in diameter, hexangular in form, blunt at the base, and rounding off to the point. Three of the sides or angles alternately are covered with a hard, thick, and fleshy substance, with a prominent division line commencing ¼ in. from the stem and running to a projecting point; the other three sides or angles with a soft, thin, membranous covering, more or less finely veined in lines, radiating from an apparent midrib, running longitudinally through the centre, quite smooth and glossy on the surface; the fleshy angles dark brown; the membranous ones very smooth, glossy, and very dark purple when mature. The interior is filled with a fruity or fleshy substance, in which the seeds are deeply embedded in six longitudinal rows. Of the origin of this variety I have no knowledge, and that it should produce seeds so freely I am unable to account. Our summer was very warm and dry, and the plant, now about five years old, cramped in a small pot, which may have something to do with it. I send you this account of the plant trusting it may be interesting to Mr. Hemsley and others who have studied the *Yuccas*, a class of plants most valuable for garden decoration, and particularly to English cultivators, nearly all of them being quite hardy in that country. Only four kinds, viz., *Y. filamentosa*, *Y. stricta* (Carrière), *Y. flaccida*, and *Y. angustifolia*, will stand the cold winters of New England.

Boston, Mass.

C. M. HOVEY.

VEGETATION IN FEBRUARY*.

THE weather during the month of February was in general very pleasant, and drier than it had been during the four previous months. Owing to this comparatively dry state of the ground, much outdoor work has been accomplished. During the month, the thermometer was seven times at or below the freezing point, indicating collectively 36°, while the united February frosts during the last twenty-three years amounted to 1492°. The highest markings were during 1855, when 220° were registered, and the fewest during 1869, when 6° only were recorded. Up to February 21 this year only 4° were noticed,

* Read by Mr. M'NAB before the Botanical Society of Edinburgh on March 5.

but since that date frost continued to the end. The lowest markings were on the 8th, 20th, 22nd, 26th, 27th, and 28th, when 31°, 30°, 24°, 28°, 20°, and 24° were registered respectively, while the highest markings were on the 2nd, 7th, 9th, 15th, 18th, and 34th, indicating 39°, 44°, 40°, 41°, 38°, and 40°. This comparative mild state of the weather has brought forward vegetation which had been so long kept back by the excessive moisture of the previous months, as will be seen by the annexed list of spring-flowering plants. It contains the names of the selected species fixed on for annually recording their dates of blooming.

	1877	1876
<i>Eranthis hyemalis</i>	Feb. 1	Jan. 26
<i>Rhododendron atrovirens</i>	" 2	" 25
<i>Lencojum vernum</i>	" 2	" 18
<i>Galanthus nivalis</i>	" 4	" 16
<i>Crocus susianus</i>	" 4	" 20
<i>Scilla præcox</i>	" 6	Feb. 16
<i>Galanthus plicatus</i>	" 6	Jan. 29
<i>Crocus vernus</i> and vars.	" 9	" 28
<i>Nordmannia cordifolia</i>	" 10	Feb. 16
<i>Daphne Mezereum</i>	" 13	Jan. 26
<i>Sisyrinchium grandiflorum album</i>	" 13	Feb. 17
<i>Scilla sibirica</i>	" 14	" 20
<i>Scilla bifolia</i>	" 14	" 24
<i>Sisyrinchium grandiflorum</i>	" 15	" 20
<i>Bulbocodium vernum</i>	" 16	" 16
<i>Iberis gibraltaria</i>	" 17	" 21
<i>Dondia Epipactis</i>	" 20	" 11
<i>Tussilago alba</i>	" 21	Mar. 8
<i>Rhododendron Nobleanum</i>	" 23	Feb. 10
<i>Aubrieta grandiflora</i>	" 24	" 17
<i>Tussilago nivea</i>	" 26	Mar. 18

On the 28th of February, notwithstanding a slight fall of snow and a hard, frozen surface, about fifty species of plants were counted in flower on the rock garden, the most interesting at that time being *Rhododendron præcox superbum*, *Erica carnea*, *E. c. alba*, *Daphne Mezereum*, *Andromeda floribunda*, *Primula denticulata*, *P. vulgaris rubra*, *Corydalis angustifolia*, *Iberis gibraltaria*, *Crocus Imperati*, *C. nivalis*, and *C. susianus*, *Lencojum vernum*, *Galanthus plicatus*, *Dondia Epipactis*, and *Helleborus colchicus*, with seven other varieties. The frost of the 28th had partially injured some of the blooms of the more tender species, while it had the desirable effect of destroying slugs and other surface-inhabiting vermin.

LILY BULBS.

ON looking over "F. W. B.'s" interesting articles on this subject, I find it stated at page 135 (not by him) that *Lilium tigrinum* is a perennial, and that *L. philadelphicum* is an annual; but I fail to see that there are any proofs given for saying so. *L. tigrinum* is one of those which I had distinctly in mind when I said (see p. 175):—"The origin of a Lily bulb is a germ or seed-bud. Nature causes this to vegetate and grow the first year, to bloom the second year, and then it dies—leaves, stem, scales, and roots all perish." In saying this, it may be seen that I had no indications whatever of *L. tigrinum* or *L. philadelphicum* being either annual or perennial. *Lilium philadelphicum* has been described not only as an annual, but as being of a rhizomatose character. "F. W. B.," however, tells us that after examining some fifty or hundred roots, he saw in them no traces of rhizomatose growth; and as I accept what he says, and his drawing of the bulb, as authority, I of course keep this Lily in the same category with *L. tigrinum*. There are also *L. bulbiferum*, *L. croceum*, *L. davuricum*, *L. Martagon*, and others, which are described as perennials, but, in like manner, I see no reason for removing them from the class of biennials. Coming now to the true rhizomatose class, at page 156 I find *L. canadense* and *L. superbum* described not only as rhizomatose, but also as perennials. The drawings show the rhizomatose character distinctly. There are many plants besides this class of Lilies that present subterranean stems, but they all creep in the same manner, obliquely or horizontally, under the surface of the soil, and vegetate at their most advanced point, whilst the parent plant itself gradually decays and dies. This mode of existence in subterranean stems or root-stocks is well exemplified in the drawings of the bulbs. The flowering bulb of the year sends out from its base a rhizome or root-stock, which bears at once scales or modified leaves and root-fibres, at the point of which, carried with it, a germ or seed-bud grows into a bulb similar to the parent one, and this flowers the following year; the whole term of existence, from the vegetating of the germ or seed-bud until the new bulb has grown, flowered, and died, not exceeding two years. The only difference between this class and the other is that the new bulbs do not form within the old bulbs, but at some distance from them, as clearly shown in the engravings. Why any of these, or of the other class,

can therefore be called annual or perennial, I am at a loss to understand. A biennial I understand to be "a plant which lives but two years; its roots and leaves (scales) are formed the first year, its flowers are produced the next, after bearing which it perishes." This seems to me to be the brief but true history of a Lily bulb; especially of all the Old World species.

At page 115, "F. W. B." says:—"It may be safely said that no Lily bulb blooms twice from the same centre; and although most of the Japan Lilies seem to produce flower-stems from the same bulb (on close examination we find that the flower-stalks spring from new buds formed within the old bulb every season), they are, in fact, new bulbs formed within the parent one, but remain attached to the same base, drawing in part sustenance from the surrounding scales, which are only undeveloped leaves." This is, in principle, so closely allied to my doctrine, that is, the three distinct generations in one bulb, as submitted by me to your readers at p. 175, that there would be no great difficulty in resolving your correspondent's theory and mine into one. There is a difference certainly, but so slight that nine out of every ten might very easily overlook it; the application of the "germ or seed-bud" doctrine being, in fact, the only real difference between us. The seed-bud, in October, though so minute as not to be perceptible to the naked eye, hides under its very delicate envelope the source of those brilliant ornaments of Nature which every year witness the birth and death. The seed-bud is, in fact, the cradle of the young plant. This organ alone is capable of reproducing a new individual, which may vary slightly as in the human family. The function of the parent is to nourish, strengthen, and increase its growth, until it is able to rank with others of its own species. It may be said, in fact, that a Lily is all buds; there is scarcely any part that does not produce them—the roots, the scales, the stems, the leaves even, may accidentally give birth to adventitious buds; for Nature never loses sight of the phenomenon essential to organic life—namely, the production of new beings. But these adventitious buds—though they present themselves without any order, and the exact spot where they may present themselves cannot be foreseen—seldom or never present themselves on or near a healthy-growing new bulb; as the new bulb absorbs all nutriment from around it for its own nourishment. In considering the nature of flowering bulbs, it is absolutely necessary to ignore entirely, for the time being, all common or uncommon offshoots emanating from the roots or stems, as they are simply Nature's method of multiplying the species, and not of continuing the race of any particular bulb.

In studying these matters, the terms "seed-bud" and "leaf-bud" have sometimes been confounded; but they differ very much, and more particularly in this, that the leaf-bud propagates the individual as well as the species, while the seed-bud continues the species, but not necessarily the individual. This would seem to direct our attention to a point of some importance to Lily cultivators. Some time ago a difficulty arose about settling the nomenclature of certain varieties of *Lilium speciosum*. It was urged that we had not sufficient evidence as to the constancy of particular forms—that we had no security that the bulb, which this season produces flowers of any particular colour and form, will in the forthcoming season produce the same, especially if grown under different conditions. Now this is just what I have said about new individuals varying slightly; for if we consider that all Lilies emanate from germs or seed-buds, and that, while the seed-bud continues the species, it does not necessarily continue any individual variety, we need not be much surprised that varieties should sometimes vary among themselves, or that an individual variety should now and then itself vary, when a new seed-bud takes the place of the former one, and forms a new and distinct succession bulb. I simply venture to throw out the above hints for the consideration of Lily growers and shall be pleased to be the means of eliciting some account of their experience in the pages of THE GARDEN.

DUNEDIN.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

What is a Hybrid Primrose?—This is a designation given for the sake of convenience to a race of Primroses intermediate in character between the scapeless Primrose and the ordinary Polyanthus, with its erect stem surmounted by a truss of flowers. They display this intermediate character by, first of all, throwing up early in winter a number of flowers on long stems, just as the common Primrose does. Later on, there arises up from amongst this tuft of blossoms, but quite distinct from it, a stiff, erect, Polyanthus stem, bearing a truss of flowers in the ordinary manner. Quite a pyramid of flowers is thus obtained—a most desirable result where Primroses are employed for bedding purposes in spring.—D.

Saxifraga oppositifolia maxima.—This is not the same as *S. oppositifolia pyrenaica*—as might be inferred from the note (see p. 186). The flowers of *S. o. maxima* are much larger than those of *S. o. pyrenaica*.—R.

THE FRUIT GARDEN.

ORANGE CULTURE IN FLORIDA.

I HAVE just returned from my Orange grove in Florida, some account of which may not, perhaps, prove uninteresting. Ten years ago Orange groves could be almost counted upon one's fingers; now they may be found in numerous localities in Florida, some of them very successful, while others have failed from want of the proper exposure and soil. The true Orange soil is not found in every place, and the only position secure from frost is the south-eastern side of a large extent of water. Thus, during the extreme cold of last December, the thermometer went down to 15° Fahrenheit on the west side of the river opposite my grove, and fruit was frozen and young trees destroyed. This also happened 100 miles south of me, while at my grove the thermometer did not fall below 31°, and neither fruit nor trees were in the least injured. This is attributable solely to the fact that my grove lies on the south-east of a long stretch of the St. John's River, and receives the air tempered by the radiation at night from the water heated by a warm sun during the day. A grove that has safely endured such unprecedented cold, and in which the growth and bearing of the trees show that it has the true Orange soil, has a definite money value. The maximum produce of an Orange tree of some age is from 5000 to 7000. This, however, is a rare crop, and 1000 per tree for a grove ten years old is considered to be a successful result, 100 trees planted upon an acre thus producing 100,000 Oranges per acre. I sold my crop this winter at the rate of 2½ cents per Orange, the purchaser picking the fruit. A commoner rate is 2 cents each, and this would give an annual income of £400 per acre. Reduce the bearing one-half and the price one-half, and you have £100 per acre, which is certainly satisfactory. Under proper care and greater age, the produce will be increased. One of my trees ten years old produced over 1000 fruit, and a few years more age will doubtless double its crop. The most experienced men who deal largely in foreign fruit hold a very decided opinion that the price of Florida Oranges can never go very low, their quality being so superior that they bring £2 8s. per barrel, while the West Indian or Mediterranean Oranges realise only 12s. per barrel. They have, however, hitherto been so few that they have reached only a few localities, but they are now being more extensively distributed, and have met with such general appreciation that both the consumption and the price have largely increased. The modes of packing are so much improved, and the express companies at the north have learned so well how to take care of them that they are sent over the whole country in the most severe weather with very little loss. I have no doubt that we shall soon ship them largely to England. It is certainly as practicable as for Sicily to send Oranges to America. I am frequently asked why it is that the Florida Orange is so superior to the tropical ones. I think it is owing greatly to the fact that the tropical Orange blooms and bears without cessation during the year, while in Florida there is always more or less frost, and the tree has a distinct period of rest, bearing one crop of fruit annually, and maturing at the same time. Then, again, I have noticed with the Apple that the farther north a certain variety is grown the finer flavoured it is. The same rule may apply to the Orange; the farther north it can be grown with certain limitations the finer will be its quality. In 1869 I introduced the Bahia or Navel Orange, and many of the trees then budded with it are now in bearing. It proves superior to all others, and is being planted largely. I have several hundred of the little Tangerine Orange planted, but although so popular in the Paris market it is not so much appreciated in Florida; I think, however, that when introduced into our northern markets, its peculiar qualities will make it popular. I have a variety from Japan of the Kumquat order the size of a Cherry, with a skin delicate, thin, and not at all pungent, with pulp of a very delicate texture, and possessing a flavour as sweet and spicy as that of a Navel Orange. It can be eaten whole like a Gooseberry. The tree is quite dwarf, and when fruited in a pot may be placed upon the table and the fruits plucked and eaten. It will not grow upon the Lemon or common Orange stock; it only succeeds upon the *Limonia trifoliata*, which is

hardy here, having withstood exposure in the Central Park for two winters. This Cherry Orange is not yet for sale in this country. An Orange grove in Florida is a beautiful object, and, exclusive of its pecuniary value, is a pleasant thing to have. It furnishes a good excuse to leave our snow and cold in the north and look after the picking of the Oranges in a temperature of from 60° to 80°, except on certain occasions when there is a little frost. While lounging under my verandah and listening to the hum of insects, the notes of the mocking bird in the Orange trees, the flight of doves over me, and the tapping of the scarlet-headed woodpecker, I can scarcely realise the fact that my children were coasting and skating at home. Orange trees shade the side of my house and touch the verandah in front, and two Oleanders from 15 ft. to 20 ft. in height overarch the front path. Limes and Shaddocks of large size may also be seen on all sides, and likewise little Tangerine Oranges half hidden among the foliage. A Magnolia grandiflora, 40 ft. high, overshadows the path to my boat-house, and I was obliged to cut down another with a trunk 2 ft. in diameter, because it injured my Orange trees. It is marvellous how far the roots of Magnolia trees will travel. One would nearly overrun an acre. Fig trees grow luxuriantly, and in one corner of a field is a live Oak grove (*Quercus virens*), the trees composing which are 75 ft. in height, and filled with long streamers of melancholy Moss.

The beauty of the St. John's River is scarcely known to the distant world. It is navigable 300 miles from its mouth, often broadening into lakes, and its waters, which flow north from the Everglades are clear and fresh until they meet the tides from the ocean. Innumerable branches, creeks, and rivers jut out from the river, some running 50 miles into the interior, and navigable by steamboats, while others are narrow and shaded by overhanging trees, which are reflected far down into the mirror-like water below. There are few hills in Florida, but its Amazon-like waters make up for their absence. Blue Spring is a place I once owned, which rises gradually from the St. John's River for a quarter of a mile, (until it reaches a precipitous bank overhanging a sulphur spring which rises the size of a barrel through 10 ft. of superincumbent water), and forms a stream so clear that fish 10 ft. below can be plainly seen. With proper railroad communications Florida can be reached in two days from New York.

Flushing, New York.

SAM'L. B. PARSONS.

INSIDE AND OUTSIDE VINE BORDERS.

I SHALL not venture to assert that Vine roots have an "inherent tendency to travel towards the south," as Mr. Grieve states (see p. 197), but if I have one decided opinion more than another upon (grape growing, it is that the roots will go outside in preference to going inside if they can get out, and I do not think it matters whether the direction is south, east, or west. This is one of those mysteries about which we are at present completely in the dark. I never tried a Vinery on a north aspect, but I believe the roots would travel north under such circumstances rather than remain inside. I have an impression, also, that they multiply faster outside than indoors. During the twenty years—pretty equally divided—which I have spent at Dalkeith Park and Wortley, my experience has been uniform with regard to inside borders. All the Vineries 200 ft. in length at Wortley are planted inside—some entirely so—but in most of them the Vine roots can go both ways; and where this is the case I believe the whole of the inside roots might be cut clean away without any serious detriment to the Vines. Yet all the Vines were planted inside, and the roots were turned in when planted, and every inducement offered them to remain inside, but without avail. To convince myself thoroughly on the subject, I removed the whole of one inside border, up to the front pipes, and found comparatively few roots, and some of these had turned round with a sweeping bend, and gone out between the arches in the front wall. I brought all inside again that I could get hold of, and now, after four years, I can put the spade in several feet away from the back wall to find no roots, while outside they are, I believe, under the walk 20 ft. away nearly, and the whole of the outside border is one mass of roots up to the surface, and it is just the same with our other Vineries. It is a significant fact that in the case of the Vinery in which the inside border was removed and replaced, the Vines scarcely showed any signs of having received a check, but bore fruit and grew as usual. There is only one Vinery in the place in which

we have succeeded in filling the inside border with roots, and in this they cannot get out. The Vines, too, are planted on a ridge in the centre of the house, and one-half of the tops are trained down the rafters towards the front or south, and the others are trained up to the top. My opinion is that an outside border is just about as good as an inside one, to say the least about it, if it be protected with a little fermenting material, and the labour connected with the management of inside and outside borders is about equal. In our case the labour of watering the inside borders, &c., exceeds that bestowed upon the outside generally. To those who have doubts I would say, have your borders either inside or outside, but not both; and to insure filling the former with roots plant the Vines along the centre of the house or against the back wall, and train them down the rafters instead of up.

J. SIMPSON.

Wortley.

THE SEASON AND THE FRUIT CROPS.

WINTER has come at last in the shape of a heavy fall of snow, which lasted from early morning till noon. The northerly and north-easterly winds were sharp and keen, and, altogether the fall of snow and of temperature will no doubt arrest the opening flowers of fruit trees for a time, and perhaps save the crop. Pears are on the move, Peaches decidedly swelling, and Apricots open in some localities, and just on the eve of opening in all. In fact, the fruit crop hangs suspended, as it were, on the weather of the next few weeks; be that what it may, it would be wise to apply all protecting expedients as soon as possible, for even the young blossom-buds that have hardly begun to open are already full of crude sap or quite swollen out with water; and, practically, it matters little whether they have absorbed fluid from the roots, or through their bud-coats (as was at one time held to be possible, but is now generally decided); one thing, however, is certain, viz., that moisture is present and in excess, and that such excess is a source of danger to the fruit-buds. The danger is twofold—the moisture assists the buds to open before the proper time, and it makes them more tender; for both reasons the buds ought to be provided with protection earlier and to a greater extent than usual. The partial shade of protecting materials is also as useful at this early season of the year as their heat-conserving powers, for the sun has often a more fatal influence on vegetation in the early spring than frost. The latter can do but little harm alone, but let the sun work with it to open the buds, and then the frost will most assuredly kill them. By partially shading the blossoms during the glimpses of sunshine, we keep them closed the longer, and closed blossoms are the best possible protection to the tender nectaries or ovaries against cold.

Flimsy protectors in motion are often more potent in their bud-preserving powers than denser ones at rest, the motion charging and breaking, as it were, the stinging lines of cold, and moving them about so rapidly that they cannot get sufficient rest for their killing work. It is the mobility of textile fabrics, whether nettings of wool or string, &c., that renders them of such service for protecting purposes. Again, protect the top of the wall, and its face and bottom are well-nigh safe; it is the radiation into the open sky, when there are no clouds to return any of the heat poured into vacant space, that chills the life out of fruit-blossoms. Shut that open door by erecting a coping, or by some other means, to prevent the loss of heat, and the blooms will in all probability be saved. But as the late mild and wet weather has made fruit-blossoms abnormally tender, not a day should now be lost before all efficient expedients for their protection is resorted to.

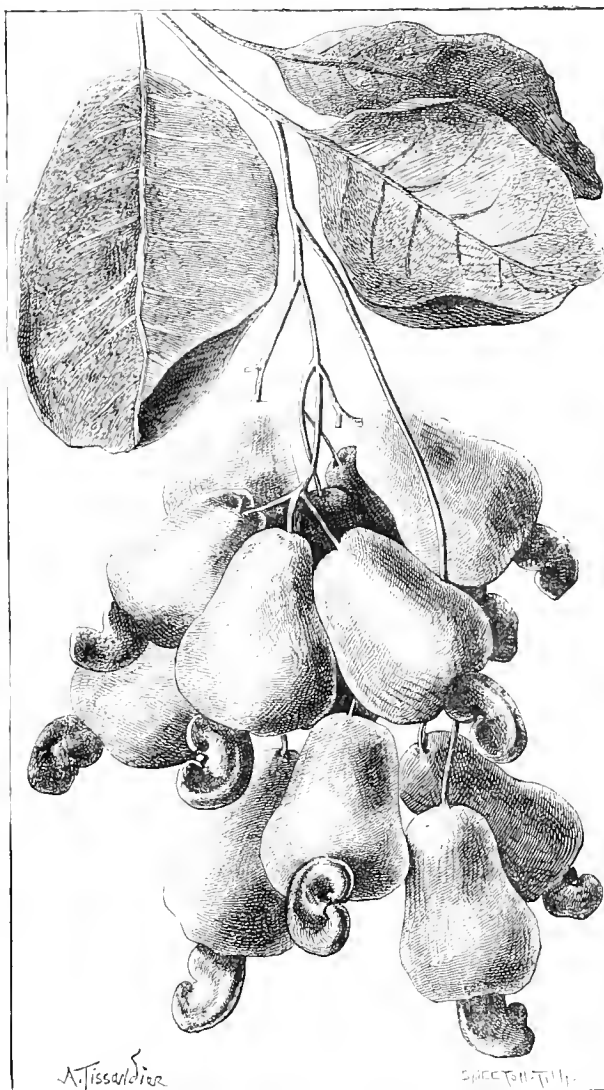
D. T. FISH.

Varieties of Melons.—Mr. Hinds (see p. 193) truly says, that "we have far too many varieties of Melons, or rather names." The remedy for this evil lies to a great extent with ourselves. A friend of mine, an excellent fruit grower, grows but one kind of Melon, the seed of which he has saved for about twenty years, and I have never seen finer crops of good fruit than those which he produces. My advice to the inexperienced is, when they prove any particular sort to be good in constitution, bearing, flavour, and appearance, to keep to it, and not be led away by the bewildering array of names in catalogues. Mr. Hinds refers to Meredith's Hybrid Cashmere and Trentham Hybrid, which were, so far as I could judge, very much alike. With regard to the former, no finer-flavoured or handsomer fruit was ever grown, and as I happen to have a few seeds taken from one of Mr. Meredith's prize fruits at the Royal Horticultural Society, I will send Mr. Hinds a few, but cannot guarantee them vegetating, as they are from fourteen to sixteen years old. I have also seeds of Trentham Hybrid saved from a true stock, of which he shall have a few, and if he succeeds in growing them, I hope that he will give us his opinion of their merits at the end of the season.—J. E.

THE CASHEW NUT.

(ANACARDIUM OCCIDENTALE).

THIS Nut tree is much cultivated in the West Indies and other tropical countries where the roasted Nuts or kernels are used as food. It forms a large, spreading tree, not unlike a Walnut in general appearance, but with more bluntly-oblong leaves, the agreeably-odorous, rosy-tinted flowers which precede the fruits being produced in panicles at the tips of the young branches. The fruits are borne in Grape-like-drooping clusters, as shown in the accompanying engraving. The Nuts themselves are rarely larger than a Kidney Bean, each being borne singly at the apex of a large, Pear-like receptacle. The stem of the tree when pierced exudes a milky juice, which dries hard and of a dark colour, and which may be used as a varnish or gum. The shell of the Nut contains an acrid oil, which often causes severe excoriation of the lips and gums, if cracking the Nut in the mouth be attempted. Even the kernels are acrid until after they have been roasted, when they become not only wholesome but peculiarly agreeable in flavour. The roasting has to be carefully conducted, as the acridity of the volatile oil given off in the process is so great that it is apt to produce inflammation in the face. The gummy product of this Anacardium is used by bookbinders in South America, who wash their books with it, in order to keep off moths and ants; and the essential oil of the fruits is likewise applied to the floors of houses in India to ward off the ravages of white ants, which throughout the tropics are so numerous and destructive. B.



The Cashew Nut (*Anacardium occidentale*).

STRAWBERRY CULTURE.

A LABOURER in Yorkshire having a garden about 25 yards long by 12 yards wide, has for several years cultivated Strawberries for sale as follows:—He commenced by making two beds across the middle of his garden, each bed being 4 ft. wide. The variety planted was Rivers' Eliza, a free-bearing kind which appears to suit his soil, which is of a light character. On the outer sides of these two beds, he planted three rows of Early Ashleaf Potatoes which he lifted about the end of June. The land thus cleared early was raked level, so that the Strawberry runners could overrun it and establish themselves and produce a crop the following season. Next year he planted Early Ashleaf Potatoes as before up to the Strawberry runners produced the previous summer; lifted the Potatoes at the end of June, and levelled the land again for runners. He called this system "a travelling Strawberry bed," a designation which it well deserved, for the whole garden soon became covered with Strawberry plants. About the third year the two beds first planted became exhausted, and the plants were dug in along with a good portion of manure. In the spring a crop of Kidney Potatoes was taken off the land thus bared, and Strawberry runners allowed to

establish themselves. Each succeeding year this practise was followed. Having heard that this man had large quantities of Strawberries for sale, I was induced to pay him a visit. I found his fruit large and fine, and he had good sale for it both for table and preserving. His garden, he said, did not give him much trouble, and at the end of the season it had produced so much fruit that he sold £7 worth. There are many persons who have gardens, the soil of which is so light that all attempts to cultivate Strawberries in them have been unsuccessful. Where clay cannot readily be obtained, road scrapings can generally be had for nothing; in preparing a plot of land, let a good portion of these be incorporated with the soil and also some good manure; tread the beds down firmly and then plant the runners about 15 in. apart, and a fair crop may be produced the first year. Strawberry runners procured from a distance always do better than those from one's own garden. H. T.

GOOSEBERRY FUNGUS.

THIS is a species of *Æcidium* (*Æ. cancellatum*) and consists of small, membranous sacs or protuberances, which are found parasitic on the leaves, bark, and fruit of several plants, such as the Fir, Violet, Barberry, Hawthorn, Mint, Primrose, and Nettle. The membrane forming the sac has received the name of Peridium. It pierces the bark or epidermis of the leaves, and encloses very minute dust, like seeds or sporules, which are ultimately discharged by an opening in its side or summit. In consequence of the seeds being contained in a membrane, the genus has been referred to a division of fungi which has been denominated *Angiocarpi*. There are upwards of thirty known species of the genus, and they receive their names from the plants on which they are found. Link has divided this genus into three subgenera, the *Æcidium* properly so called, the *Ræstelia*, and *Peridium*. The *Æ. cancellatum* belongs to the second of these divisions; it is often found on the leaves of Pear trees. To the third division belongs the *Æ. Pini*, remarkable for being the largest species, and for growing not upon the leaves but upon the bark of the Pine tree; they vary in colour. The species that grow on the Gooseberry and Barberry leaves are red, that found on the Scotch Fir is yellow, and that on the Meadow Rue bright orange. The *Æcidia* cause considerable deformities in the plants on which they grow, and some of them are decidedly injurious and poisonous. The Gooseberry *Æcidium* frequently destroys the young fruit; the species found on the Barberry has been stated, though perhaps erroneously, to be hurtful to corn growing near it. My experience with regard to the Gooseberry fungus is as follows:—Some years ago about one-third of the fruit in a plantation became blotched very much with this fungus. I gave the ground amongst the bushes a liberal dressing with

lime in the autumn, and syringing them over with a compound consisting of alum, 1 drm.; Tobacco essence, 2 drms.; flowers of sulphur, $\frac{1}{2}$ oz.; common salt, $\frac{3}{4}$ oz.; all mixed in 3 gallons of rain water. This was done twice before the expanding of the leaf, and again as soon as the fruit appeared to be fairly set. The first application destroyed the mycelium in the soil, and the syringing cleared the bark of its sporules, and my Gooseberry bushes were left free from all trace of fungus.

Rawdon, Leeds.

J. GRAHAM.

TREES AND SHRUBS.

THE PRIVETS.

THESE form a group of evergreen and sub-evergreen shrubs, distributed over a wide area in Europe and several parts of Asia, chiefly in the colder or temperate regions. Most of the known species are sufficiently hardy for cultivation in open shrubby borders, and even the tenderest succeed perfectly when planted against a wall. All the sorts are valued for their beautiful, and more or less fragrant flowers, which are generally produced in great profusion. They all thrive well in sheltered situations near the sea, and are among the few evergreens that grow well exposed to the smoke and dust of towns. One or two of the hardiest of the species are extensively planted as garden-hedges or screens, for which, as they may be trimmed or clipped into almost any shape, they are peculiarly well adapted. The following is a selection of the most desirable species and varieties:—

Common Privet (*Ligustrum vulgare*).—This is a native of Britain and several of the countries of continental Europe. It forms a bush of from 6 ft. to 12 ft. in height, with abundance of slender, wiry branches. Though usually classed as a sub-evergreen shrub, it is found to retain its foliage through the winter in warm, sheltered situations—that of some plants being more persistent than that of others under any circumstances. The flowers, which are sweet-scented, and borne in terminal panicles, appear about the end of July, and are in most seasons abundant enough to render the plant very attractive. Not the least interesting feature of this species is its beautiful clusters of dark purple berries, which ripen in November, and hang on the branches during the greater part of the winter. It is scarcely necessary to say that the Common Privet is seldom planted as a specimen in ornamental shrubberies, but is one of the most popular of our garden hedge plants; as such it is met with in every district of the country, growing freely in almost every variety of soil, requiring little labour to keep it close and neat, and, moreover, so hardy as to be unaffected by the severest frosts. As it thrives well under the shade and drip of trees, it is now largely planted in woods as an undergrowth or shelter for game. There are several varieties of it, of which the undermentioned are the most useful for decorative planting;—*L. v. fructu-luteum* or *xanthocarpum*.—This is somewhat denser in its habit than the type, but of equally free growth; it has a pretty effect in autumn and winter when covered with bright golden fruit, which contrasts well with the dark foliage. *L. v. pendulum*.—This variety has long weeping branches, and when grafted as a standard on a stem 4 ft. or 5 ft. high, forms an elegant specimen for a small lawn, or in any other situation where it can develop its peculiar character without obstruction from other shrubs. *L. v. variegatum*.—The leaves of this form are prettily blotched with bright gold. It is scarcely so robust as the parent, of which it is a sport, but it grows quite as freely. The variegation is always most brilliant, as well as most constant, when it is planted in poor sandy soil, and in an aspect fully exposed to the sun. *L. v. buxifolium*.—A very distinct variety, differing from the species in its broader and more decidedly evergreen leaves. It is a handsome bush for a shrubbery, and is particularly desirable as an ornamental hedge plant.

The Leather-leaved Privet (*L. coriaceum*).—This dwarf-growing evergreen species is indigenous to Japan, where it is reported as occurring in mountainous districts in considerable abundance, and as being largely cultivated as an ornamental shrub. It was first introduced into British gardens in 1861. In its native habitats it is rarely found higher than from 3 ft. to 4 ft., forming a densely-branched bush, abundantly furnished with dark, glossy green leaves of a thick leathery texture, and of a more or less orbicular shape. The flowers, which are of a greenish-white colour, are even at their best not very conspicuous. Though the points of the young shoots are sometimes slightly injured in severe seasons, particularly when the plant is growing in damp or much exposed situations, this fine plant may be fairly classed among our hardy shrubs, and its dwarf, bushy habit, and dark shining foliage, commend it to the notice of

planters who require low-growing evergreens for the margins of borders, or for winter bedding in the flower garden, where it contrasts admirably with most other shrubs generally employed for that purpose, and particularly with those having variegated foliage.

The Japan Privet (*L. japonicum*).—This, as its name implies, is indigenous to Japan, where it is said to be a favourite flowering shrub in gardens, and whence it was first sent to Britain in 1846. It is a spreading evergreen bush which grows about 10 ft. high; its leaves are large, broadly ovate, sharply pointed, and dark glossy green. The flowers begin to expand about the end of June, are pure white, and delicately fragrant; they are borne on large, upright panicles from the points of the shoots, and when in perfection are very effective. This handsome species succeeds tolerably well in the open shrubby border, where the soil is dry and the situation sheltered; but even under the most favourable circumstances it is subject to injury from severe frosts; planted against a wall, however, it is rarely injured in the slightest degree, growing freely, and producing its showy blossoms season after season in great profusion. The following varieties of it have prettily variegated leaves, and are popular as wall shrubs. They develop their colours best when planted in a sunny aspect, and in a rich but dry soil:—*L. j. aureum marginatum*.—The leaves of this are edged with bright gold. *L. j. argenteum marginatum*.—This differs only from the preceding in the colour of its variegation, which is pure white.

Shining-leaved Privet (*L. lucidum*).—This very distinct species was first introduced into British gardens from China in 1794. It is a broad-growing, bushy evergreen of about 10 ft. high, with a somewhat stronger constitution than that of *L. japonicum*. The leaves are smaller than those of that species, ovate-lanceolate, pointed, and of a dark glossy green colour. The flowers, which are pure white and sweet-scented, are borne in upright panicles from the points of the branches; they expand in September and October. Though this shrub succeeds tolerably well in the open shrubby border, forming, in moderately-sheltered situations, a handsome bush, it is always found to grow and flower best on a sunny wall; it likes a rich soil, not too stiff, but it must be well drained. The following variety is a favourite with planters of ornamental wall shrubs, viz.:—*L. l. variegatum*, the leaves of which are blotched or margined with gold. It is scarcely so robust as the parent, but grows quite as freely.

The Indian Privet (*L. nepalense*), also known under the name of *L. spicatum*, is a sub-evergreen species, indigenous to mountainous districts in Nepal, where it forms, at considerable elevations, a densely-branched bush of from 8 ft. to 10 ft. in height. It has been cultivated in British gardens ever since 1823. Its leaves are elliptic, acute, of a bright glossy green colour, the under surface being more or less thickly covered with minute hairs. The flowers, which are in spikes, and pure white, are fragrant, and in perfection in June and July. This species, which is distinct, is probably the most ornamental of the genus, so far, at least, as the flowers are concerned, but it is, unfortunately, too tender in most districts for cultivation in open borders; it is, however, admirably suited for planting against a wall, where, if moderately sheltered and in dry soil, it grows and flowers freely, and rarely suffers from frost. In mild seasons, when so sheltered, it is nearly, if not altogether, evergreen.—“The Gardener.”

NOTES AND QUESTIONS ON TREES AND SHRUBS.

Moving Large Trees.—In Paris at present, instead of planting young Plane trees as of old on newly-formed boulevards, large and well-furnished trees are planted. Thus the newly-formed Boulevard Henry IV. is furnished throughout with well-grown plants, with stems nearly 1 ft. in diameter, and nearly 30 ft. high. It will be interesting to notice how they will pass through the summer.—V.

The Monarch Oak.—This, the largest Oak in Herefordshire, was sold the other day by auction. The reason for cutting down this king of the forest was because it has been three times struck by lightning within the last seven years, but though these repeated attacks have shattered a great part of its top, it still contains upwards of 1000 cubic ft. of timber, and its girth is 66 ft. With this tree two smaller Oaks were included (one of them a dead tree), and the three together realized the reserve price of £200.

Ghent Azaleas as Underwood.—I would suggest to those about to plant evergreen underwood to intermix, especially with Rhododendrons, the yellow Ghent Azalea. There are many colours of this fine hardy flowering shrub, but the yellow is the most robust, and makes the best rabbit-proof covert next to the Rhododendron. Being sweet-scented, moreover, gives it an advantage, and for coverts, in connection with dressed grounds, a decided advantage. The yellow-flowered, black-berried *Berberis Aquifolium*, too, is a better rabbit-proof covert than the Laurel, which with us is more eaten by rabbits than any other evergreen. Evergreens should never be planted in great sweeping masses, but should be divided or sub-divided by deciduous plants, and for this purpose the above Azalea is well adapted.—HENRY KNIGHT, in *Field*.

HARDY FLOWERS IN LONDON GARDENS.

OWING to the continuance of cold weather but few of these are in flower which were not noticed last week. Daffodils are everywhere very showy, the common double yellow, the white Paper, and the double Roman being especially attractive in most places. The old-fashioned double yellow Wallflower is also just now very showy at Mr. Ware's, where may likewise be seen *Saxifraga oppositifolia major*, bearing a quantity of deep rosy-purple flowers. Snowdrops and Dog's-tooth Violets are still effective, as are also *Iris reticulata* and its variety called *Krelagei*. *Arabis blepharophylla* is bearing clusters of deep



Common Violet (*Viola odorata*).

rosy flowers in abundance. This plant, though introduced by Douglas in 1833, is not so common as it ought to be; it, however, well deserves culture both in pots and in the open ground, where a supply of cut flowers is needed in winter and early spring. *Primula erosa* and *P. denticulata* are also just now in good condition in London nurseries, and the Spring Snowflake (*Leucojum vernum*) is still, in warm, well-drained beds, bearing multitudes of drooping, Snowdrop-like flowers. At Barr's grounds at Tooting Primroses are still attractive, as are also Squills and Hepaticas, and under trees *Aubrietia grandiflora* is producing thousands of small, purple, starlike blossoms. The Snake's-head Iris (*I. tuberosa*) is throwing up strong spikes of dull-coloured blossoms at Tooting, where may also be found double white, red, and pink Daisies, and



Mossy Saxifrage (*Saxifraga hypnoides*).

Dwarf Phlox (*P. setacea*).

Cyclamen Atkinsi, flowering freely. *Erica mediterranea rubra* is still very pretty at Parker's, as are also *Ficarias* and *Bulbocodium vernum*. A variety of *Anemone*, called by Mr. Parker *Gloire de Nancy*, is bearing large, blue, Poppy-like blossoms in abundance, and *Vinca major variegata* and *V. minor* are just coming finely into flower. At Kew *Arabis alpina albida* is thickly covered with pure white Alyssum-like blossoms; and *Iberis Garreuxiana*, growing in the form of large tufts, is producing white and brown flowers from every point. *Anemone pavonina* and *A. hortensis* are also still in good condition at Kew, where the Spring *Adonis* (*A. vernalis*) is likewise throwing up large, yellow, Tulip-like blossoms. S.

PARK ROADS.

THE quality and permanency of a road depend to a great extent upon the way in which it is made at first; but we are afraid that road-making is almost a lost or little understood art on gentlemen's estates. Agents, gardeners, and others may often succeed after much labour and experience in constructing a tolerably good "permanent way," but it is not every one who understands how to set about it at the beginning, or the first principles of road-making. Let us take an example or two of many that could be furnished. A gentleman who had spent thousands of pounds on his parks and estates, among other improvements, laid out some miles of new roads. These were cut out in the ordinary way, and then filled in higgledy-piggledy 5 in. or 6 in. deep with water-worn gravel, fine and rough together, which never settled into a crust, but worked constantly to the surface, leaving the road in a continually uncomfortable state for both wheel and foot traffic. In the other case the road-metal used was of the wrong description, being too soft, and it was laid upon the road before the bottom had settled uniformly, which resulted in the road becoming uneven and full of hollows which had to be filled up afterwards, making the surface appear if anything more patchy and uneven than it did before. Eventually the roads were hacked up again after a few years and macadamized properly under the superintendence of one who understood the work, and from that day to this—nigh twenty years now—they have required no attention save occasional hoeing at the sides and sweeping with a broom. After the heaviest rains or prolonged wet weather they are soon dry and comfortable, the water disappearing from the surface immediately, and at ordinary times they are as smooth as a pavement. The reason why such roads are so often ill-made is because the work is usually entrusted to ordinary labourers, who have not the slightest notion of road-making, more than that it consists in covering the ground with stones laid on anyhow. The workman is not, however, always to blame. Directions are sometimes given on the subject of such a kind, it is to be feared, as to deter gentlemen from attempting the task of road-making altogether, or at least from attempting more than half measures. Since these remarks were begun we have noticed a chapter on road-making in a contemporary, in which we are informed, among other items, that the principal thing in the formation of roads is "to have a good solid foundation," which foundation is to consist, even where the traffic is light, of rough stones or slag run together with chalk or some other binding material, and is to be covered with a considerable depth of broken or smaller stones on the top, the whole to be 8 in. or 12 in. deep. This is neither more nor less than Telford's system, which is the most expensive of any. Digging out the soil and laying solid foundations 8 in. deep for walks and carriage drives where the "traffic is light," is quite unnecessary work, and a plan seldom adopted under such circumstances. Indeed, many engineers maintain that "solid foundations" made of large stones, are just as useless, if not as great an evil, in ordinary roads as stone sleepers were found to be on railways. At all events, such solid foundations are not necessary in park roads, and this the great road-maker—Macadam—demonstrated long ago. By his system roads can be made both cheaply and well, if his instructions be carried out as they should be, and perhaps we could not do better than quote them here. He says:—"For the foundation of a road it is not necessary to lay a substratum of large stones, pavement, &c., as it is a matter of indifference whether the substratum be hard or soft: and if any preference be due, it is to the latter. The metal for roads must consist of broken stones (granite, flint, or whinstone, is by far the best); these must in no cases exceed 6 oz. each in weight, and stones of from 1 oz. to 2 oz. are all to be preferred. The large stones in the road are to be loosened and removed to the side, where they are to be broken into pieces of the regulation weight; and the road is then to be smoothed with a rake, so that the earth may settle down into the holes from which the large stones were removed; the broken metal is then to be carefully spread over it, and as this operation is of great importance to the future quality of the road, the metal is not to be laid on in shovelfuls to the requisite depth, but to be scattered in shovelful after shovelful till a depth of from

Rollisson's Telegraph Cucumber.—I find the true strain of this Cucumber to be most productive. Plants of it in a house that has been in full bearing ever since last November are still producing young fruit in abundance, and where Cucumbers have to be supplied every day in the year, this variety is, without doubt, one of the best in cultivation.—RICHARD NISBET, *Aswarby Park, Folkingham.*

6 in. to 10 in., according to the quality of the road, has been obtained. The road is to have a fall, from the middle to the sides, of about 1 ft. in 60 ft., and ditches are to be dug on the field side of the fences to a depth of a few inches below the level of the road." Now Macadam, whose system has superseded nearly every other in this and in Continental countries, speaks of ordinary country roads calculated to sustain heavy traffic, and the greatest depth of metal recommended is 10 in. For carriage drives and park roads half that depth is often considered sufficient, and we can state that, if the directions given here be followed out, particularly as regards levelling the bottom of the road and allowing it to settle, and the spreading of metal, 5 in. or 6 in. is sufficient; and for this depth of stones it is not necessary to dig out the road deeply, nor to remove much more than the turf, in fact: this will allow the road to be a little higher in the middle than the ground at the sides, which will permit the water more readily to run off. Macadam's object was not to allow the water to drain through amongst the stones and settle in the bottom to make a puddle of the soft soil beneath, but to make a hard and impermeable crust that would throw the water off at the sides. More depends, it may be said, upon the making of the road than upon the quantity of material used, and the most essential points are a level and well-settled bottom and the regular spread of the stones. Thiu macadamized roads have been made over peat bogs and they stood, and we have seen carriage roads laid with only 4 in. of stones on a loam bottom that had not budged after years of traffic. It may be added that it is not necessary for the whole of the road-metal to be of hard stone, such as whinstone, if it be not easily procured. Soft stones, or even broken bricks will do for the purpose; but these must be laid in the bottom, and the top layer must consist of hard stones, which should be broken small, and the finest saved for spreading on the surface as binding material. Above all, it is essential that the stones should be angular in shape, and for this reason they must be broken. Some use sifted water-worn stones or gravel, but such material shifts under the traffic, and then the crown of the road gives way.

S.

Glazing on Mr. Pearson's Plan.—Having read the remarks on glazing by Mr. Pearson (see p. 184), and also those by "B. S." (see p. 197), I am induced to say that at Willey Park, Broseley, Salop, there were some years ago about 4000 ft. of glass glazed on the plan recommended by Mr. Pearson, and it was found that the breakage through frost was very considerable. The water running down the centre of the squares accumulated under the lower point, where it became frozen and cracked the glass straight up the middle. Perhaps Mr. Stevens will kindly inform us if this still occurs. No difficulty was experienced in cutting the glass to the desired form; the glazier had a piece of thin board the size and shape of the required squares, the board having a narrow piece of wood nailed along one side to fit against the side of the glass, which was cut into long lengths the required width; the board or pattern was then placed on the glass, and the diamond run round the top or bottom as it would have been along the side of a rule.—D. WALKER, *Dunrobin, Tainbridge Wells.*

Peaches and Nectarines.—These are in full bloom here, and the trees are healthy and promising. They are fully a month earlier than usual. We protect them with double fish nets and the Chiswick hexagon net, kept off the wall by means of ordinary Larch poles, and we rarely fail to have a good crop; but the situation is good, with a naturally well-drained soil.—JOHN GARLAND, *Kellerton, Exeter.*

West v. South Aspects for Apricots.—On south aspects Apricots are rapidly opening their blossoms, while those on west aspects have made as yet little progress. In our fickle climate retarding for only a few days is an important point in the case of fruits that bloom at so early a date as the Apricot.—J. G. H.

An Old Pear Tree.—During the late storm a large Pear tree in the orchard of Mr. Robert Hay, Chase Farm, Ambergate, was blown down. Mr. Hay says that when his great-grandfather took possession of the place in 1750, or 127 years ago, it was a much larger tree than when he (Mr. Hay) was born, in 1830; and since then it has lost several large limbs in exceptionally high winds. Mr. Hay believes it to be considerably over 300 years old, and the dimensions taken to-day, as below, will, I think, to some extent bear out his assertions. The tree has been a great favourite with the old gentleman, and last year it bore a large crop of very good fruit. It had two trunks, dividing about 3 ft. from the ground line. The measurements are—Circumference at ground, 9 ft. 6 in.; at 3 ft. above ground, 11 ft.; of largest trunk, 6 ft. above ground, 6 ft. 6 in.; of smaller trunk, 6 ft. above ground, 5 ft. 6 in.; of largest bough, 4 ft. 6 in.; next largest bough, 4 ft.; height from ground to top, 45 ft.—*Derby Mercury.*

PLATE LXV.

ANEMONE FULGENS.

Drawn by H. HYDE.

THE Scarlet Windflower (*Anemone fulgens*—Gay) is a native of the south of France, where it occupies but a very limited area, and that for the most part cultivated land, especially in vineyards. Although it is nearly related to *Anemone stellata* (Lamarek), there appears to be quite sufficient ground for considering it a distinct species, as Gay did when he described it as *A. fulgens*. In fact, the localities in which *A. fulgens* and *A. stellata* are found are far distant from each other, and the seedlings of *A. fulgens*, although very often distinct from their parent, in no way ever revert to *A. stellata*. On the other hand, it seems to be perfectly certain that the plant known as *A. pavonina* is only the double-flowered form of *A. fulgens*, as its roots, leaves, and other characters are perfectly identical with those of *A. fulgens*; and, moreover, it frequently turns up among seedlings of the latter, and is sometimes even intermixed with it in a wild state. As *A. pavonina* yields no seed, and is propagated only by roots, the reason is obvious why it never under cultivation reverts to *A. fulgens*. The Scarlet Windflower may be considered to be perfectly hardy, inasmuch as it has been known to withstand, in the open border, the severest frosts of the last ten or twelve years; it is scarcely, indeed, if ever, injured by mere cold, but stagnant moisture is very detrimental to it. No hardy spring flower with which I am acquainted can compete with it as regards brilliancy of colour, which, when lit up by bright sunshine, becomes perfectly dazzling. In good, well-drained soils it will succeed anywhere, but it thrives best in a rich loam on a northern aspect, and in a somewhat shaded situation. To insure success, it should have a liberal supply of manure incorporated with the soil, which should be mulched with stable manure before frost sets in. Division of the roots is the surest and most rapid way of propagating it, as it is liable to sport if raised from seeds. Seedlings, as a rule, lack the bright colour and the substance of the parent plant, while some will become double, and resemble, more or less exactly, *A. pavonina* as grown in gardens. Roots of this *Anemone* may be transplanted almost all the year round, although the resting time extends only from June to August; but in order to insure early and good flowers, they should be planted as early as possible in the autumn. Some leaves will make their appearance in September or October with a rounded three to five-lobed outline; these will be succeeded in January by finely and deeply-cut leaves, and soon afterwards by flowers. A good bed of well-grown plants of *A. fulgens* in full bloom is a gorgeous sight; but it is not only useful for out-door decoration alone, inasmuch as the cut flowers will be found to expand beautifully in water, and last for a week or more if cut when just coming into bloom and kept in a moderately warm room.

HENRY VILMORIN.

Globularia Alypum.—Of all the *Globularias* I have seen, either in Switzerland or Italy, none is so beautiful as this species. I have met with it at San Remo, growing on dry rocks near the sea-coast, in the month of January, and also still more abundantly in the hill district above Bastia, in Corsica. The flowers are of a rich, deep blue, and growing in tufts in the axils of the branches; their colour when they first expand is strikingly beautiful. Though far from uncommon along the coast-line of the Mediterranean, this species is unknown in Switzerland and Germany, nor does it ever occur, I believe, far from the neighbourhood of the sea. Above Bastia it attains the size of a good-sized shrub. The other species with which I am acquainted are herbaceous or suffruticose in habit. I have seen *G. vulgaris*, *G. indicaulis*, and *G. cordifolia*, but they are none of them to be compared with *G. Alypum*. I gathered a large bunch of its blue flowers on the rocks of the Riviera, between San Remo and Ospedaletti, about the middle of January, 1875.—PETER INCHBALD, *Hovingham Lodge, York.*

An Early Tree.—The famous Horse Chestnut tree in the Tuileries Garden, which has received the name of "Marronnier du 20 Mars," as it was always observed to put forth leaves before any other in the park at about that date, is this year forty days earlier than usual. For some weeks past it has been covered with buds, and on February 9 a ray of warm sun tempted forth its first leaf.



NEW NORTH AMERICAN PLANTS.

(CANBYA AND ARCTOMECON).

CANBYA CANDIDA, a charming little winter annual, of which the annexed is a representation, is one of the discoveries made by the botanical party, consisting of Drs. Palmer and Parry and Mr. Lemmon, which passed last winter in South-east California and adjacent districts. Dr. Parry, who immediately recognized its botanical interest, proposed to dedicate the plant to our



Canbya candida.

common friend and worthy fellow botanist, Mr. William M. Canby, of Wilmington, Delaware; and I have peculiar pleasure in carrying this proposition into effect. The plant is diminutive in size, but of much botanical interest and no small beauty. From the Sagina-like tuft of foliage at the surface of the ground rise a multitude of little peduncles or scapes, each tipped with a bright white flower which lasts for many days; the petals (barely 2 lines long) open at sunrise, and at



Arctomecon californicum.

sunset close over the ovary, and at length permanently over the capsule, into a globular form, which the discoverer likens to a pearl.

The most unexpected anomaly in this Order of a persistent (instead of caducous) corolla is shared by Arctomecon, a native of the same district, as Dr. Parry himself ascertained upon re-discovering that exceedingly rare plant in the spring of the preceding year. There are other Papaveraceous plants which hold their petals for a day or two, notably Sanguinaria, in which they open and close for four or five days before falling; but in these two peculiar genera they become scarious,

remaining permanently in Arctomecon, and up to the full maturity of the capsule in Canbya. The two genera, although closely related, differ in some important points of floral structure as well as in aspect. The most marked difference is in the stigmas, which in Canbya are perfectly sessile, long, entire, and divergent to the utmost, so that their backs are closely applied to the surface of the rounded top of the ovary, directly over the placenta, and the upper or ventral face papillose-stigmatic; while Arctomecon, of which the accompanying is a representation, has a short style, the indistinct lobes of which bear extrorse and two-lobed stigmas, which are alternate with the placenta, and are closely appressed or even partly united in a kind of head. The capsule of the one is membranaceous and dehiscent to the base; of the other, coriaceous and apparently dehiscent only to the middle. The seeds and the stamens are likewise different. The illustration of Arctomecon in "Fremont's Report" exhibits none of these characters, and it led Bentham and Hooker to conjecture that that plant might be only a Papaver, allied to *P. nudicaule*. Dr. Parry's specimens were received in time for a partial reconstruction of the generic character in the "Botany of California"; but the position of the stigmas and the presence of a prominent crest of the seed have not before been noticed.

ASA GRAY.

COMPARATIVE HARDINESS OF HYBRID ARALIAS
IN THE SOUTH OF IRELAND.

TOWARDS the end of last spring I obtained from one of the principal Continental nurserymen a collection of sixteen varieties of these very ornamental-foliaged plants, with the intention of trying how many of them would prove hardy in this mild and moist part of Ireland, and though the winter now coming to a close has been almost everywhere remarkable for its mildness and almost entire absence of any severe frost, still, as these plants have not received any kind of protection and have very decidedly different degrees of hardiness, a few notes, the result of my experience concerning them, may not prove uninteresting. I may state at the outset that all the plants were grafted specimens, and many of them so recently that the top of the stock still remained uncut, and in every case the stock used appeared to be the variety called *A. Schœfferi*, a kind, I suppose, easily raised from seed. The least hardy of all the sixteen varieties is undoubtedly the handsome, large-leaved *A. dactylifolia* (also known under the name *Oreopanax*); this variety, which somewhat resembles in appearance and texture of leaf the foliage of the Rice-paper plant (*A. papyrifera*) should, if wintered in a house, make a handsome object in the centre of a bed in a sub-tropical garden during the summer months. The next least hardy is *A. mexicana* (also known under the name of *Dydimopanax*), a kind which has handsome dark green, five-lobed foliage; this, though it did not suffer so much as the last-named variety, cannot be considered hardy. *A. Thibauti* comes next as regards comparative hardiness, and may almost be considered hardy, as though some young and miniature leaves, which the extreme mildness of the season induced the plant to put forth about Christmas were killed by a pretty sharp frost we had a week ago, the mature leaves are quite uninjured. None of the other thirteen varieties have suffered at all from frost, and only the immature young growth of one of them from the extreme damp of the late autumn before any frost set in. *A. angustifolia* and *A. Cooki* closely resemble one another in shape of leaf and dwarf habit of growth, the first-named seeming a slow-growing and somewhat delicate-habited variety, with foliage of a lighter green and somewhat narrower than that of *A. Cooki*, which is of a dark shade indeed. *A. Knightiaefolia* (a variety saved from seed by M. Makoz, of Liège, who is also the raiser of the varieties *A. Abeli* and *A. angustifolia*), is a narrow-leaved kind, with a white vein down the middle of the leaf; this promises to be distinct and good. *A. Abeli* is a strap-leaved variety, also with a white vein on the midrib, somewhat resembling *A. trifoliata* in shape of leaf. *A. Schœfferi* and *A. quinquefolia* closely resemble one another in foliage, and are both vigorous-growing, handsome sorts, with five-lobed leaves, the lobes being slightly toothed and of rather a lighter shade of green. I am informed that this

variety stood 16° or 17° of frost in the north of Ireland the winter before last without being in the least degree injured thereby. *A. Standishi* is an upright-growing kind, with light green, single-lobed foliage, somewhat resembling that of a *Nerium*. *A. heteromorpha* is a variety with very dark green leaves of a thick, leathery texture, and varying singularly in shape, no two of them being of the same shape; the lobes are fimbriated and have a whitish midrib; this is an exceedingly handsome and distinct variety. *A. Cunninghami* has long, three-lobed foliage, of a thick, leathery consistency, of a dull green colour, but quite distinct in shape. *A. crassifolia spatulata* is perhaps the most uncommon and extraordinary-looking of the whole, having long, curiously-bent and curved, narrow, strap-like foliage of an extremely thick and leathery consistency, with a deep golden midrib down the centre of each leaf, and unevenly toothed on both sides, exactly resembling a saw, altogether a singular-looking plant; it was of this variety that the immature growth was destroyed by the autumnal damp. *A. crassifolia picta* is an exceedingly curiously-marked and ornamental variety, with perfectly straight and much narrower foliage than that of the last-named kind, with a bright yellow stripe down the middle of the leaf, and curiously-coloured spots along the edge, which is also furnished with a few small thorns at intervals, and is entirely untoothed. *A. Hookeri* is an exceedingly quick-growing, vigorous-habited variety, with perfectly straight, strap-like foliage, resembling that of the last-named kind in shape, but longer and broader, and with a distinct and handsome red midrib to the leaf; altogether an exceedingly handsome and distinct variety. *A. trifoliata latifolia*, a quick-growing, vigorous-habited variety, with large, deep green, three-lobed foliage, each lobe being slightly toothed and having a pale yellow vein down the centre. W. E. G.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Vinerias.—If Vines that were started a few weeks ago have broken, they should have a little more warmth given them. In admitting air, be careful that cold draughts are not introduced, or they will interfere greatly with the proper development of the young leaves. A Vinery in the stage just alluded to may be made to be of use for other things besides Vines, as, for instance, Strawberries, a few pots of which may be started in such a house; Potatoes may also be grown in 12-in. pots, which should be drained and half-filled with a mixture of ordinary loam and rotten manure; put one Potato in each, covering it with 1 in. or 2 in. of soil, when growth has progressed, filling the pots up; of French Beans likewise some may be sown, using 10-in. or 12-in. pots, draining, and half-filling them with good soil, putting the Beans in not too thickly, and covering them about 1 in.; these, too, when up and of some size, should have the pots filled with soil. Whatever of this description is grown in a Vinery must not be permitted to interfere in any way with the Vines, as they, of course, should be the first consideration. The Beans are very liable to become infested with red spider; to prevent this, as soon as the plants are of sufficient size to bear it, give them a good syringing every day, being particular to direct the water well to all parts of the leaves. In a Vinery at work, Camellias will also make their growth well after flowering; they can be placed in a corner by themselves, not too much crowded, and if the foliage of the Vines be not sufficiently advanced to give them the necessary shade, a piece of some thin material can be hung over them below the Vines. Every afternoon, when the house is closed, give them a good syringing, and do not on any account let them suffer for want of water to the roots. Before they are started into growth, if there be any scale on them, they ought to be thoroughly cleaned.

Forcing Pit.—To keep up a good supply of flowers on the plants for cutting as well as for decorative purposes—some more *Deutzias*, double *Prunus*, *Kalmias*, *Rhododendrons*, and *Ghent Azaleas* should be put in a house or pit where there is a little warmth. Such subjects as the above should not be put out-of-doors when they have finished blooming; they ought to have a place in a cold house or a pit, and when the season gets further advanced they can be planted out again.

Celery, sown in heat as recommended some time since, will shortly be large enough for pricking out; where it is required for use as early as obtainable, there should be prepared for it a slight hot-bed consisting of about 18 in. of fermenting manure and half-rotten leaves; on this place a two-light or three-light frame, with 10 in. of

rich soil, into which put the plants 1 ft. apart each way, giving a little water, afterwards putting on the lights, which keep close for a few days until the roots take hold of the soil; if the weather be sunny, shade in the middle of the day. As soon as growth has fairly commenced give plenty of air to prevent the plants drawing up weakly, and if well attended to as regards water they will progress rapidly. The lights should not be altogether dispensed with until all fear of frost is over; every alternate plant may then be removed with a good ball of earth and turned out into a well-prepared trench, leaving the remainder on the bed on which they have been grown, and when large enough earthing up with light soil brought in for the purpose; by this means, those who want Celery very early can have it in good condition by midsummer, but of course not large. It will be succeeded by that which was planted out from the bed, which will be ready before that grown in the ordinary way. The principal portion of the plants from the same sowing should be pricked out 3 in. asunder in a frame, in which put 6 in. of good soil on a firm bottom, composed of ashes well rammed, into which the roots will not penetrate far; for this purpose the soil should be of a light sandy nature, to enable the plants, when moved for permanent planting, to be taken up with little breakage of the roots. Where Celery is desired late, say until April the following spring, a little seed should now be sown, as this will stand longer without running to seed than the earliest sowing.

Cucumbers.—A good hotbed should now be made for a two or three light frame, according to the requirements, on which to plant out the Cucumbers sown some weeks back. This bed ought to be made 4 ft. or 1½ ft. high, the manure being well prepared. If the plants have filled with roots the small-sized pots, do not allow them to become stunted; they may be moved to others 8 in. or 9 in. in diameter, and kept in these till the bed in which they are to be planted is ready to receive them. It is well to have the plants a good size before being put out in the bed in which they are to be grown, as they will thus come into bearing before it gets cold, which will give less trouble in the application of linings through the weather getting warmer. If the seed-bed which the plants now occupy be getting cold add more heating material round the sides. A little Melon seed should also now be sown in small pots similarly to these recommended for Cucumbers; it will succeed in the seed-bed in which they have been raised.

Potatoes planted in frames at the time recommended will have made some growth aboveground, and must have plenty of air given them every day, or the tops will be drawn up weakly. It is not necessary to cover the frames at nights with mats unless there is an appearance of frost, as there will be sufficient heat yet in the bed to keep them growing, and the more light they receive the better. Carrots and Radishes in frames must also have plenty of air, and be sufficiently thinned as soon as they get 1 in. high.

Herbaceous Borders.—Most of the plants will be above-ground, and the mulching material put on early in the winter ought to be dug in; for this operation use a fork in preference to the spade. Should the Grass need edging, it can be done at the same time, thereby imparting to the whole a neat appearance. Be very careful not to disturb the roots of any kind of Lilies, as they, more than most subjects, are impatient of any interference at this season. Summer and autumn-blooming herbaceous plants, such as *Phloxes*, *Asters*, or any flowers that exist in large masses when the season is considerably advanced, it will be well to divide at the present time, as by this means their roots will be placed within reach of fresh soil, which will strengthen them and enable them to bloom better. It is necessary to keep well back in the border tall-growing plants of this description; but as far as possible avoid planting them where the ground is occupied with the roots of deciduous trees, as herbaceous plants have but a very poor chance of success under such circumstances; yet as in such situations it does not look well to have the ground bare, there is nothing better suited than the strongest tall-growing varieties of *Michaelmas Daisies* and *Golden Rods*, to assist which in such positions an extra liberal dressing of manure should be given every spring, digging the ground with the spade a fall spit in depth, which will cut off the protruding roots, and for a considerable portion of the summer spare the plants being affected by them. Any choice plants that are subject to the attacks of slugs will be benefited by an inch of coal ashes being placed round the collars of the plants, which, though it will not altogether prevent the slugs from attacking them, will in a great measure hinder them from harbouring under the plants.

Roses.—It will be well now to prune a portion at least of the stock of *Roses*, attending to the remainder in two or three weeks' time; the amount of pruning necessary will of course depend upon the strength of the variety, leaving the greatest number of shoots to those that are naturally of a vigorous, robust habit, and a less pro-

portion to those that are weaker. Cut the shoots that are to remain back to three or four eyes—all the rest get right out from the point of projection, not even leaving a single eye; by so doing the whole of the energies of the trees will be directed into the blooming shoots. Amateurs who have not had much experience in Rose growing frequently are so far mistaken in the operation of close pruning as to destroy the chance of anything like satisfactory blooming in the Tea or Hybrid Tea varieties, the most of which will only bear the use of the knife very sparingly. With these a considerable portion of the largest and strongest shoots should be retained, simply shortening them; and to prevent the heads getting too crowded some of the old growths ought to be well cut back a few inches from where they spring, and from this point just below where severed generally through the season will be produced some strong shoots that will form the best blooming wood for next year. By this means the trees will be continually furnished with flowering shoots. Roses on walls should regularly be induced to make young growth from near the base, otherwise they become unsightly, making little flower or leaf except at the upper extremity, to effect which a strong shoot or two should be cut out at about 18 in. from the bottom each year: the remaining portion will almost invariably push vigorous growths. In the case of those plants that break up from the bottom of their own accord, it is of course not necessary to resort to this treatment.

Kitchen Garden.—Sowings should be made of Cocoa-nut and Eufield Market Cabbages, Red Cabbages, Savoys, Veitch's Autumn Giant Broccoli, and Snow's Winter White Broccoli. Parsnips. —As soon as the ground is dry enough, these should be sown. Cabbages.—The soil should on a dry day be stirred amongst Cabbages planted in the autumn; it will be a good plan to draw some up to the stems of the plants: this is the more necessary if they have been at all loosened during the winter by the wind. Seakale, when the ground is in fit condition, ought to be planted; when its season for growth is long, it becomes stronger than if not planted till late. The stronger the pieces of root that are used for planting, the stronger, as a rule, will be the crowns that they make; pieces as thick as one's finger and from 6 in. to 9 in. long are the best; where, however, a sufficient number of these do not exist, smaller ones will do. Make holes for them with a dibble, letting the top of the piece of root be level with the surface; plant them from 15 in. to 18 in. apart. If there be a scarcity of roots, pieces of the crowns may be used for planting.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

March 19.—Potting and plunging Lilacs that have been forced. Potting off Balm, and boxing Calceolarias. Re-potting Dendrobiums and other odds and ends among Orchids. Shifting the *Calanthes* into peaty loam, sand, dried cow manure, and small crocks. Basking *Dendrobium Farmeri*, *D. Bensoni*, and re-mossing *Lælia anceps*. Sowing Carnations, Picotees, Asters, Stocks, *Tagetes*, *Love-lies-bleeding*, and *Prince's Feather*; also more Peas, Spinach, and a bed of Carrots. Planting Shallots and Garlic, first-sown Cauliflower plants, Lapstone Kidney and Early Handsworth Potatoes. Pricking out Onions. Potting in more Coleus, *Alternanthera*, and *Iresine* cuttings. Moving *Artemisia*, Calamint, Oxalis, and *Veronica*s into cold frames, and annuals into cool Vineries. Getting Violets in pots out of houses. Potting Cauliflower and Lettuce plants into cold pits, and another batch of Asparagus into a manure-frame. Digging vacant land. Forking among Gooseberry and Currant bushes. Staking young Vines. Syringing *Odontoglossums* four, and *Aerides* five times every day. Washing Apple trees in orchard with lime and soot-water. Wheeling manure on Asparagus-beds. Making a pit ready for Cucumbers. Earthing up Cabbage plants. Cleaning autumn-sown Onion-bed. Putting saucers under Strawberry pots. Keeping the orchard-houses in which the blooms are expanding at from 45° to 50° at night, leaving a little air on constantly.

March 20.—Potting young show Pelargoniums for late blooming and small Violets in 8-in. pots. Shifting *Cattleya*s into larger pots; also *Vanda cœrulea*, placing 60-sized pots, and Moss lightly among the roots. Sowing Cockscombs and Balsams; also Broad Beans, main crop of Parsley, and Long Surrey and James's Carrot. Planting Red Cabbage and Globe Artichokes. Dividing Dahlias; also Plumbago and scented *Verbena* cuttings, and layering *Jasminum azoricum*. Pricking out Tomatoes; staking Peas; watering all permanent Peach trees in houses. Manuring dwarf Roses; top-dressing *Camellias* with loam; taking straw off beds where Mushrooms are appearing; and thinning out *Mignonette*.

March 21.—Potting Dahlias and placing them in heat. Potting off *Lobelia*, Golden Chain and other *Pelargonium* cuttings. Shifting Tree *Mignonette* into 8-in. pots, using all manure with a top-dressing of loam and sand. Blocking *Cattleya Dowiana*. Pating peat and horse-droppings to *Odontoglossums*; slaking out and repotting those deficient in roots; also surfacing up *Masdevallias* with peat, Moss, and sand. Sowing *Waleheren* Cauliflowers, Pine-apple Beet, and Myatt's *Victoria Rhubarb*. Planting *Ambretia græca* and *Viola cornuta*; also Fortyfold Potatoes, Seakale, and autumn-sown Cabbage plants. Moving potted-off *Heliotropes* into greenhouse. Placing Seakale thongs in shed to sprout. Digging vacant land. Throwing out trenches and manuring for Seakale. Turning manure for hotbed on which to strike Pink cuttings. Thinning Strawberry fruits. Hoeing among growing crops. Weeding walks and cleaning up rubbish. Keeping Muscat Vines coming into bloom at from 68° to 70° at night, never admitting air until the temperature reaches 95° by sun-heat. Keeping *Hamburghs* in flower at from 66° to 68° at night, according to the weather.

March 22.—Potting Stocks as they show flower. Shifting young *Fuchsias* into 6-in. pots, and putting French Beans into fruiting-pots. Taking away as much soil from the roots of *Disas* as possible, and replacing it with an admixture of loamy peat and sand. Basking *Odontoglossum Rossi*, and placing it in Lyeaste-house. Sowing Seakale and Watercresses. Planting out Lily of the Valley that has been forced. Pricking out Celery plants, half Red and half White. Thinning out young Asparagus plants. Putting gravel on low places near doorways, and laying turf. Earthing up Broad Beans. Thinning fruit in Peach-house, leaving two on a shoot. Rolling rough gravel, and cleaning away straw and other litter from about pits, frames, &c.

March 23.—Potting Alyssum and examining Orchids in baskets. Sowing branching blue Larkspurs, Primulas of sorts, and *Amaranthus*; also Malta and Paris Cos Lettuce in heat; likewise main crop of Celery, and putting it in Cucumber pit, placing glass over the pots, more Chervil Radishes, and Meredith's Hybrid Cashmere Melon. Planting more Cauliflowers. Putting in some Golden Willow cuttings. Impregnating Primulas for seed. Protecting Jefferson and Kirk's Plum in blossom by means of netting. Putting down covers over Green Gage Plum trees every night. Searching for fly on Peach trees, and for thrips on Vines. Watering Potatoes in frames. Putting Broccoli fit for use under cover. Salting Asparagus and Carrots. Digging border for Turnips; also flower borders. Forking between Peas and Cabbage, and preparing beds for sowing Brussels Sprouts, Savoys, and Curled Greens. Putting fresh gravel under Orchid-house stages. Earthing up early Melons with good stiff soil; also first Cucumbers, and training out the shoots. Soiling Potatoes in frames; also hand-glass Cauliflowers. Salting walks to eradicate Moss.

March 24.—Sowing Yew berries and more *Perilla*; also Campbell's Melon, Cucumbers, Parsnips, and Turnips. Planting Carnations, Fairy Roses, and *Gladioli*; also Lapstone Kidney Potato, more rows of Cauliflowers between Early Peas, and dividing and replanting Pennyroyal. Pricking off seedling *Petunias*. Putting variegated *Pelargoniums* into cold pits. Watering inside borders of Muscat and *Hamburgh*-houses. Putting up the shading in *Vanda*-house. Preparing land for Sweet Peas. Digging among *Rhubarb* stools. Putting in manure for *Hollyhocks*. Fumigating Orchid-houses to kill thrips and green fly.

Orchids.

At this season of the year particular attention should be paid to unhealthy plants, should there happen to be any, with a view to their re-establishment. In this the cultivator will be materially aided by the increasing length and brightness of the days, and by the efforts made by the plants themselves to get into good condition. Re-potting, re-basking, or blocking a plant in bad health is one of the first things to be considered, and in doing this care should be taken that the plant is placed in as small a pot or basket as possible, and that it is supplied with good fibrous peat in lumps, living Sphagnum Moss, or a mixture of both, as the case may be. Some mix silver sand with the material used for potting Orchids, particularly for unhealthy specimens; but although by retaining the moisture round the plants it may appear to be beneficial for a time, experience tells me that it is injurious to epiphytal Orchids. If the plants root in such material the sand becomes embedded in the tender gelatinous points of the roots, thereby stunting and distorting them; it also, by keeping the material close, excludes air, which is of almost as much importance to the roots as to the leaves. Although most epiphytal Orchids undoubtedly succeed better and require less trouble when grown in baskets or on blocks, either suspended or placed on stages, than when grown in pots, and although some are known, as a rule, to succeed best in

Sphagnum Moss, and some in peat, the potting or basketing material to be used must be regarded as matters of secondary consideration. One of our best Orchid-growers remarked, when speaking of *Dendrobium Devonianum*, which was supposed at that time to be very delicate, that he could grow it as well in turfy loam as in fibry peat; and this has been done, although turfy loam cannot, as a rule, be recommended for this *Dendroble*. The preservation of a proper and genial temperature, resorting as little as possible to artificial heat, the admission of plenty of light, and the exclusion of the burning rays of the sun, the maintenance of the requisite amount of humidity, the strict observance of the growing and resting seasons, and, above all, the admission of pure air by means of ventilators properly arranged, whereby the air may be induced to circulate freely through the house without causing draughts, are matters of the first importance in Orchid culture: and to these the attention of the cultivator should be specially directed, otherwise the care bestowed on potting, basketing, or blocking—which is now in active progress in the case of the general collection—will be comparatively valueless.

—JAMES O'BRIEN.

Indoor Fruit Department.

Pines.—Plants now in fruit must have sufficient water to keep the soil in a moist state. Examine them twice a week to prevent them from becoming dry at this particular stage, which causes the fruit to become one-sided and stunted in growth; if out of flower, let them be occasionally bedewed overhead, and the paths and all other surfaces damped with the syringe. Now that the light is increasing, the night temperature should range about 70° in mild weather, with a rise of 15° or 20° by day, according to the temperature outside. Where late winter fruit is still on hand, have all brought together, and subject them to a few degrees more heat; place them in a stove in a bottom-heat of 90° with abundance of moisture. It being necessary to make a growth beforehand, plants intended for fruiting in October should be gently grown on with a view of resting them in May; let the night temperature be at 65°, with a bottom-heat of 80°, admitting a small quantity of air during the dark hours to prevent them becoming drawn. Autumn suckers, as a rule, at this season are shifted into their fruiting pots, and during their progress should receive every attention. See that the roots thoroughly penetrate the balls of earth, as nothing is gained by a larger pot before the plant is fit to take to the fresh soil, and by a careful examination of the roots one is able to discover whether or not they become too dry, which condition should always be avoided—especially previous to their insertion in fresh soil, and where any plants have become soaked through drip or bad drainage, let them be shaken out entirely. Where new tan is introduced, prevent the bottom-heat becoming too intense by shaking the pots, 60° at night being sufficient with a bottom-heat of 80°. All soil should be thoroughly prepared before starting by keeping it in a place with a moderate temperature for two or three days. A compost consisting of a good fibry loam well sifted, and of a fair sprinkling of bone-meal mixed with a little soil, is necessary for their well-being, and let the pots be well crocked, not too deep, but cleanly and covered with Moss. Good suckers on winter stock, after having been taken off and potted, will root readily at this season. Prevent overcrowding, and refrain from placing stove plants among them, such being generally the cause of the Pines being attacked by white scale.

Vines.—Where the crops in early houses have been thinned, and are now swelling freely, they may be pushed sharply along by day; avoid hard forcing by night, 65° being sufficient, with a little air on for Hamburgs; on all occasions when ripe fruit is wanted to time, let the pushing be done by daylight; timely stop all young shoots and side-growths; two leaves beyond the bunch where lateral leaves are encouraged are sufficient (I prefer a few leaves more on the main stems), and pinch out laterals. Care must be taken not to overcrowd, admit as much light as possible, and take every advantage of the sun in shutting up; make repeated examinations of the borders to prevent them becoming dry; well water them when needful—giving tepid guano-water of the usual strength when obtainable. Where the Grapes are colouring withhold manure-water—this applies to Vines either in pots or borders; increase the air, and keep the atmosphere somewhat drier. Where old Grapes are still hanging on the Vines, they should be cut and placed in bottles of water, with a few pieces of charcoal to prevent the water becoming putrid. In any pruning yet to take place the wounds twice should be dressed with styptics; remove all rough, loose bark, and well wash with soap and water, and tie up the rods in their fruiting positions. Young growths in succession-houses should be tied in carefully and betimes, otherwise the strongest of them will snap off at the old wood; this applies to the strongest growths. Late Vineries should now be started where good flavour and keeping qualities are to be combined, late starting being injurious to both. Keep a sharp look-out for

insects, especially when the Grapes are stoning. Red spider generally puts in its appearance at that time, for the removal of which pest hand-wash on its first appearance; in dark, dull localities, mildew at this particular season frequently attacks the Vine, a cure for which will be found in Speed's Annihilator, syringing afterwards, otherwise the foliage will be affected. Where young Vines are to be planted, all border-making should be brought to a close, especially if green turf be used, when the border should be turned over before planting, to prevent overheating.

Peaches.—In this department of indoor forcing it is necessary to proceed with caution before the stoning of the fruit takes place. First and second houses in this locality are furnished with plenty of well-set fruit. The first should not exceed 58° at night, and the second 55°, with a circulation of air during night; when the stoning has commenced, 5 more will be needful if early fruit be required, shutting up in fine weather with as much sun-heat as possible, and well syringing the trees and all available surfaces. Disbud succession-houses betimes, and keep a sharp look-out for green fly, which fumigate on its first appearance, otherwise the foliage will become yellow and drop. In cases where the trees remain to be pruned that operation should be brought to a close, as the buds, when fairly started, are easily rubbed off, and the difficulty of washing and cleaning the trees and houses is thereby considerably increased.

Figs.—If all have gone well with the first crop they will be swelled and fit to gather soon. A night temperature of 60°, and a corresponding rise by day, should be afforded them, with every attention to watering, and in no stage of growth should Fig trees be allowed to become dry. When the pots are filled with roots, water with manure-water at a temperature corresponding to that of the soil. Where good drainage exists abundance of water is requisite, using the syringe freely daily, giving air on all favourable occasions, and allowing plenty of light, which will prevent them becoming drawn, and add material to their fruiting powers. Start later houses (after having been thoroughly cleansed) by well watering the borders and damping the houses frequently, keeping a night temperature of 50°. Pinch all young shoots when three or four leaves have been formed; where shoots are wanted stop the flow of the sap by making a deep incision in front of the eye; disbud where the fruit is thickly set together.

Strawberries.—In many instances the fruit will be ready to gather, and in such houses a circulation of air should be maintained to insure good flavour. After colouring begins cease to give manure-water, and refrain from syringing overhead, 55° at night being ample for the setting of the berries, but where time is short 70° may be maintained, with a free circulation of air during the night, taking every advantage of sun-heat during the day. Where the plants are used up for planting out, it would be better to have the protection of a frame and gradually harden them off. Introduce a fresh stock according to demand—300 or 400 make a good succession—remove all the yellow leaves from the necks of the plants, and let all inert soil be shaken off. Top-dress with a good rich loam, and ram the soil down firmly. Expel worms from the pots by the aid of lime-water, putting the lime into a tub the day before and well stirring it; run off the water when clear the following day, and use it when the plants are introduced into heat.—J. HUNTER.

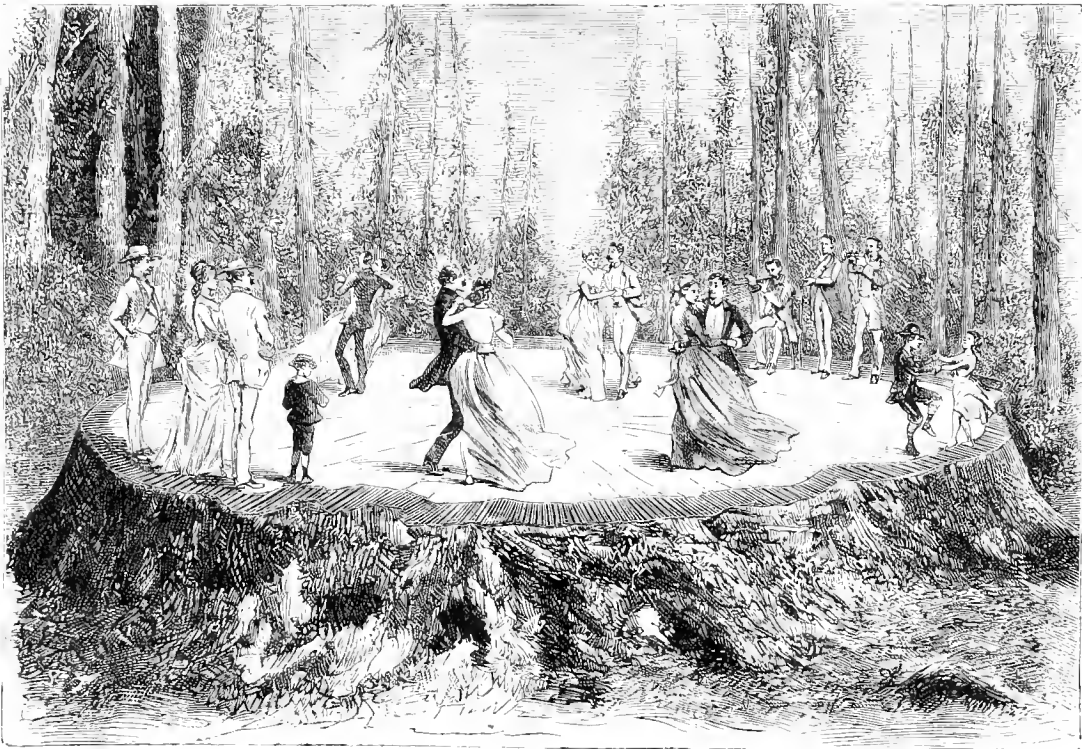
RAISING VERBENAS FROM SEED.

THE matter of raising Verbenas from seed is really a simple one as practised by our leading Verbena raiser, Mr. Henry Eckford. I remember calling on him once when he was at Coleshill, and inspecting his bed of seedling Verbenas, and in course of conversation he communicated to me the following details as to his method of raising seedlings, in which he was always most successful. Starting with the obvious truth that no one should attempt to raise seedlings unless from a strain of seed that would be likely to produce something worthy the time and attention of the cultivator expended on the process, he went on to say that he always made a point of sowing about the middle or end of March, in any convenient-sized pots, using a good rich loam, and covering the seed with soil to the depth of a quarter of an inch; he then placed the pots in a temperature of 65° or 70°, and kept the soil constantly moist. In the course of three or four weeks the young plants were large enough to handle, and then they were pricked off, 2 in. apart, in pots of soil. As soon as they began to establish themselves they were then gradually hardened off till they were fit to occupy a cold frame. The great danger of keeping Verbenas in heat is that they are apt to become affected with red spider; and when once they get infested in that way, it is very difficult to get rid of it. As soon as the weather was sufficiently favourable, generally about the beginning of May,

Mr. Eckford used to plant out his seedlings in a well-prepared border to bloom, and the ground was kept clear of weeds till the plants flowered; all the most promising were duly marked, and worthless varieties were pulled up and thrown away. I was always struck with the remarkable vigour of constitution shown by Mr. Eckford's plants. The late Mr. C. J. Perry, who in his lifetime raised large numbers of fine Verbenas, used to grow all his plants in pots under glass; and as he used to make their value for exhibiting purposes a leading point, the habit of many of his choicest varieties was the reverse of vigorous; on the other hand, Mr. Eckford always made vigour a leading test, as he steadily kept in view the value of the Verbena as a bedding plant, and his seedlings being flowered in the open air, a good test of this could always be afforded. When a promising variety expanded its flowers, a hand-glass used to be placed over it to protect the blossoms from being disfigured. It should always be borne in mind that the Verbena likes rich soil and an open situation, and therefore Mr. Eckford always advocated a liberal use of well-decomposed manure when a Verbena bed was prepared. In the course of raising his fine varieties he trusted more to a very careful selection of the best flowers to seed from than to

FLOWERING PLANTS FOR PLEASURE GROUNDS.

It cannot be denied that the present system of flower gardening has been overdone. In many places all has been sacrificed to this Moloch of modern gardening, and many a fine tree has been ruthlessly destroyed, and many a pretty picturesque situation sacrificed to make way for the uninterrupted straight lines and curves which are found necessary to the carrying out of some ribbon border. We have run the risk, too, of losing many fine plants which, simply because they could not be made to conform to the rigid requirements of the ribbon border, have been condemned, and either relegated to some out-of-the-way place or entirely discarded. It is the reckless conduct in this respect which has caused many to brand the bedding system as a mistake, and we can hardly be surprised at the harsh things which are sometimes said respecting it. A change in the public mind has, however, been observable lately. The more extensive culture of the Lily tribe and many other families of hardy summer-blooming plants, has directed attention



Dance on a "Big Tree" Stump.

fertilization. When crossing was resorted to, a very fine camel's hair brush was used, inserting it very carefully in the tube of the flower—an operation by which the pollen was transferred to another flower without, however, attempting to remove the natural pollen, which in Mr. Eckford's opinion would have proved a tedious operation, if indeed it could be done without injuring the flowers. A bed of Verbenas should consist of mixed colours, and not wholly of any one variety. Charming effects may, with a little care, be worked out in this way.

D.

Dance on the Big Tree Stump.—Among the various ways of giving an idea of the vast size of the Pines in some parts of the Sierra Range in California few are more suggestive than the engraving this week, which represents an actual occurrence after the cutting down of one of the biggest of the sound trees, some of which, it will be remembered, are nearly or quite 40 ft. in diameter. The species in question is the Wellingtonia or Sequoia, the greatest of the region as regards size of trunk, but which is rivalled in height by other trees of the same locality, as, for example, the Douglas Fir and Redwood in the districts most favourable to their growth.

to the fact that there exist many plants of easy culture which, although not coming within the catalogue of bedders, may either be used with advantage in their stead, or, at any rate, serve as a pleasing contrast to them. For those who can command plenty of glass accommodation, the production of bedding plants is a comparatively easy matter; there exist, however, many places where this is not the case. Many have not the means, or are unwilling to incur the unavoidable yearly outlay which the bedding system entails. Beyond a few beds within the immediate vicinity of the mansion, very little is done to secure an adequate floral display, and this simply because the expense of propagating and preserving the plants during winter is too great. This consideration proves, too, a great drawback to the occupants of villa gardens; they have not the convenience to keep up a stock of bedding plants, and are not disposed to go to the necessary expense in the spring of providing a sufficient quantity to satisfy their requirements. Now in order to have a beautiful display of flowers in summer, it is not so absolutely necessary to have a large stock of the so-called bedding plants; in fact, they may be dispensed with to a much greater extent than is

generally imagined. In most places, however, there will exist convenience for wintering a certain amount of them, and provided suitable kinds of plants be chosen, and a proper method of propagation and storing followed, a good quantity of plants may be preserved in good health in a limited space. Care and strict attention during the winter months have much to do with obtaining satisfactory results; but the mainspring of success will be found in the preparatory autumn treatment of the plants. Only the hardier kinds of bedding plants should be chosen, as the more vigorous the constitution the closer they may be stored together. In the way of

Pelargoniums,

for example, only the Scarlet and Zonal varieties should be selected. There are many different ways of propagating these plants; some dibble them in the open ground in August, and when fairly rooted, pot them singly in small pots. In this manner ninety-nine out of every hundred will strike root, and there is less labour in attending to them than if treated otherwise. Others, again, just put the cuttings singly into pots, and do not disturb them until planting-out time arrives next spring. Either method is good for those who have plenty of room, but for others who must make the most of their space, I should recommend a different method from either of the abovenamed. Take 48-sized or 32-sized pots, drain them well, and fill half full with a good, rich compost of equal parts of loam and well-decayed manure; fill up to within 1 in. of the rim with some well-pulverized soil, to which a third of silver sand has been added; then not later than August take fair-sized cuttings, selecting them with the wood in as matured a condition as possible. If the season have been a moist one, the shoots will probably be rather succulent and tender; in that case, after being made they may remain a day or two before being inserted. The superfluous sapesapes—a circumstance which diminishes the chances of rot. About a dozen cuttings may be put into a 32-sized pot, making the soil as firm as possible round them; then set them in a frame and give them a moderate watering. Air should be constantly left on, and shading should only be applied on very hot days. In this way, and by careful watering, nearly every cutting will strike. As soon as they are rooted, the sashes should be left off night and day, except during heavy rains, and the plants should not be housed much before the middle of October, the object being not to excite growth, but rather to retard it. Thus treated they will be able to resist the fluctuations of temperature and comparative absence of light with which they may meet in their winter quarters. The two main points to be considered in this matter are early propagation, in order that they may be well rooted before winter sets in; and thorough exposure, so as to well harden them before putting them under cover. A great quantity of cuttings made in this way may be stored in a small space, and will be found to give greater satisfaction than old plants taken up and potted late in the season. The tricolor section I should not recommend for this purpose; they are very effective bedders, but, unless they can be wintered in a light, dry house, they come out so debilitated in the spring that nearly half the summer must elapse before they recover sufficiently to show their true character.

Verbenas.

If Verbenas be desired, then only kinds possessing robust constitutions and free-growing habits should be selected—one good scarlet, one white, and one purple are enough. Many of the newer kinds in cultivation are defective in vigour, and are better suited for pot than for general outdoor culture. One of the principal points to be observed in order to ensure success in Verbena propagation is the selection of suitable cuttings. In hot dry summers cuttings of Verbenas often fail, as the wood becomes stunted and hard; it is only late in the season that they recommence to make growth, and, as early propagation is in their case necessary, we must take precautions to ensure the needful supply of cuttings at the season required. To effect this, a plant or two of each kind should have their blossoms kept cut off from the end of June onwards, and they should be well supplied with water in dry weather. If a spare corner can be devoted to this purpose it will be preferable, as in that case the soil can receive such preparation as will secure

free growth; 2 in. or 3 in. of a mulching of rotten manure will do much good. From plants thus treated a plentiful supply of cuttings will be obtainable and of such a free healthy character that they may be relied upon to strike root quickly. For striking Verbenas, 48-sized pots are perhaps best, as with pots of that size the amount of moisture is more easily regulated, and excess of moisture can be better avoided than if the pots were larger. These pots should be filled quite a fourth full of drainage, and then filled to within 2 in. of the rim with a fairly rich soil, which must be surfaced with an inch of silver sand. It is well to give the pots a good watering some few hours before using them. There are two kinds of cuttings; they can either be made of the terminal shoots cut to a joint with several pairs of leaves attached to them, or they may be made of eyes, that is to say, simply leaving one pair of leaves with as much of the stem below the joint as possible. These, if inserted quite up to the leaves, root all up the piece of stem in the soil. By the former method, larger and stronger plants are of course obtained, but by the latter method a greater amount of plants, and this is a desideratum when the stock happens to run short. It is, however, useless to put in cuttings of this description if the stems have become hard and wiry, as even if they do root, the plants never acquire a free habit of growth, in fact, no success can attend Verbena propagation unless the wood is soft and succulent and free from all insect plagues such as red spider. If the stock plants have, however, been kept well supplied with moisture, red spider will not be troublesome. When the cuttings are put in they should be immediately placed in a frame, and if possible on the north side. They should be kept close and shaded during the heat of the day, but air should be given at night, and, if the weather be calm, the lights should be drawn off, the heavy dews which often succeed the hot days of August being extremely beneficial to them. Although excess of moisture is to be guarded against, Verbena cuttings must never be allowed to get dry or flag, for if this takes place once, no reliance can be placed on their making satisfactory progress. By this manner good, full, healthy pots of cuttings will be obtained, containing some twenty plants each, which, if well exposed for two or three weeks before housing, will pass the winter satisfactorily. One seldom sees a really good potful of Verbena cuttings; the pots being often patchy, or two or three vigorous, and the rest feeble. This often arises from the unsuitable condition of the cuttings when inserted; they have either not been selected with care or the plants may have suffered from overblooming. From hundreds of plants in that condition I have often failed to get as many good cuttings. To this cause may be traced many of the failures in Verbena culture—the plant starts with a feeble constitution, and weakness begetting weakness, the cuttings taken in the spring retain more or less of the constitution of the parent plant, and are thereby rendered more liable to any disease which may overtake them. There is one other method which I have successfully practised in striking Verbenas, and which possesses the merit of simplicity:—I take some ordinary pot saucers or flats without holes, fill them to within 1 in. of the rims with silver sand, insert the cuttings, and fill up with water, and set them out in the open sun. Care must be taken that they never suffer from want of water, and they will strike readily. If the saucers be kept filled they will not flag, and, being subjected to great solar heat, they quickly root. To those who have not much time to spare and are liable to be absent at times, I should recommend a trial of this method, as beyond seeing that there is sufficient water, there is not much attention required. They will not, of course, make such strong, vigorous growth as those struck in pots, which have the advantage of a good body of soil in which to root.

Miscellaneous Plants.

Calceolarias should not be put in till the middle of September, as they seldom make suitable cuttings until the moist, cool nights arrive. They should be kept in cool frames as long as possible; a dry, harsh atmosphere checks and cripples, and renders them very susceptible to the attacks of green fly. Ageratums, which are valuable on account of the colour of the flowers, blue being comparatively scarce, should be struck about the latter end of August, and, if well rooted, they will

winter well even under indifferent accommodation. Lobelias should be sown about the middle of September; the best thing in which to sow them is a shallow box: by sowing in September they will become hardy little plants, and may be pricked out in frames about the middle of March, or under a hooped roof in April. They may then be transplanted into their permanent places without a check. Small plants, treated in this way, will generally do better than plants in pots; the roots are not injured, and, if carefully transplanted, strike into growth at once. Petunias may be raised from seed in the spring; they should be pricked out into shallow boxes when the young plants are large enough to handle, and kept rather close and somewhat moist for a time, in order to induce rapid growth; they should then be hardened off, and by the latter end of May they may be placed in their permanent summer quarters. A bed of Petunias is both beautiful and interesting, especially if the colours be well intermixed; and a packet of seed of a good strain will afford a vast amount of variety. A bed of the double kinds, when the plants make good growth, is strikingly effective, the colours being soft, delicate, and harmonious.

Wintering Half-hardy Plants.

I have now alluded to the most indispensable of the so-called bedding plants, and such as will be found to be the most easily wintered where but a limited and inadequate amount of heated glass structures exist. Those who only possess cold frames may try all the above-named subjects with every hope of success. The worst enemy in unheated structures is damp. It often happens that coverings cannot be removed for a lengthened period, and when that is the case there will be sure to be considerable damage done; however, with care as regards cleanliness and giving plenty of air on all favourable occasions, a considerable amount of plants may be saved. The various kinds of Centaureas, *Echeveria secunda glauca*, *Cineraria maritima*, &c., require no other care than the protection of a cold frame, or even wooden shutters to throw off the wet, covering them up in hard weather. Now, I am supposing that even by economising house-room to the fullest extent the supply of plants remains very inadequate to the requirements of the pleasure grounds; it is, therefore, evident that we must seek further afield to supply the deficiency; and when we consider the variety of

Annuals

now in cultivation, and how extremely effective they are when well managed, and how easy of culture, the wonder is that they are not more extensively used than they are. I do not mean that other plants should be discarded, but they might be used to supply unavoidable deficiencies instead of long reaches of naked shrubby borders and meagre-looking beds, such as one often sees a really good show of summer bloom may be created, and that, too, with a comparatively small amount of labour. Let us take, for instance, Asters; what a variety of form, colour, and habit of growth do we not obtain among them! They may be either ribboned out with regard to their different shades of colour, or they may be massed or dotted here and there amongst shrubberies. In whatever way they may be used they fill up large gaps, and as regards brilliancy they have few equals. Now here is a plant, of which a good supply may be obtained with a relatively small amount of labour. No winter care is required in the case of this class of plants; operations need not commence until the most trying time is passed, and then all that is necessary is a slight hotbed on which to raise the seed, and a piece of well-prepared soil in the most sheltered spot that can be found, so that a mat may be used as a covering. Whether in large or small gardens these two requisites will not be difficult to arrange. In small places a one-light box and a few barrowloads of manure will amply suffice; where a larger space is to be furnished, greater appliances will have to be provided. With one season's experience the amount of seed to be sown and the room required will be accurately ascertained. The seed should be sown in pans about the middle of March, and placed on the hot bed; as soon as they young plants are fairly up they should be removed to a cold frame and gradually inured to the air, in order that they may become

hardy and be kept dwarf and stocky. By the time they have made three or four leaves, they will be in a suitable condition for transplanting; prick them out in the beds of previously-prepared soil already mentioned from 4 in. to 6 in. apart; here they may remain until required for use. It is highly important that the soil in which they are pricked out should have been thoroughly pulverised and fairly enriched; a sprinkling of soot worked into it will be found beneficial. The planting out, too, should be done after a few days' genial weather, when the surface-soil shall have become somewhat warm. The mats should be put on regularly at night, and on very wet and cold days it will be better not to remove them. Many consider it necessary to prick the seedling plants into pans a second time, or pot them off singly; this method, however, causes a vast amount of after labour in the way of watering, &c., and cannot be practised on a large scale. By the plan just described labour is economized, and the results are in every way more satisfactory, for the following reasons:—The plants, having a more extensive root-run, develop much better, and when taken up with a good ball of fibre they thrive better than when turned out of a pot. Then, again, if there be a pressure of work, they may be thinned out and the rest left until there is time to attend to them; some, too, may remain permanently, to be potted when fully grown if required for conservatory decoration or to fill up blanks which sometimes occur later in the summer. The above treatment will apply, with but slight modifications, to many other of the principal kinds of annuals, such as Balsams, German Stocks, Phlox Drummondii, Portulaca, Zinnia, and French Marigolds; the two latter I should much recommend, as they are showy, cover the ground well and quickly, and last long in bloom; they are better adapted for edging, shrubby borders, and for planting in dwarf plantations, associated with such plants as Dahlias, Marvel of Peru, climbing Tropæolums, &c., than they are for forming regular beds.

There are, of course, many kinds of annuals which do not require even the labour and trouble just described, such as *Eschscholtzia*, *Sanvitalia*, *Mignonette*, &c., all of which may be sown where they are to remain and flower. In fact, with the enormous variety of annuals now in cultivation a garden may be kept gay the whole season through almost entirely without the aid of the usual bedding plants. In order to effect this, a special study must be made of the times of sowing, &c., so as to ensure a succession. I have known gardens in which flower-beds were kept in a blaze of bloom during the whole summer by means of annuals, which were sown and grown in pots expressly for that purpose; they were plunged in the soil when nearly in bloom, and the supply being kept up, the beds were always in perfection. The labour certainly was great, but the result was most satisfactory, the beds being always gay and always varying. I cite this merely as an instance of what may be done by means of annuals, and my object in recommending some of the principal kinds for more general cultivation is to enable all to have a gay garden in summer, and to help where there is a large space to fill and but limited means for doing it. There are, of course, many other showy plants which may, with but a slight amount of care and management, be made very useful plants, which, instead of being merely seen as single specimens, should be massed, in order to obtain a good effect. JOHN CORNHILL.

Byfleet.

LYCOPOD CONES AND PYRAMIDS.

THESE interesting plants, besides being capable of being grown in the form above indicated, can also be grown in ordinary seed-pans, from 4 in. to 6 in. deep, and from 6 in. to 16 in. in diameter. The soil that I employ is good turfy peat one-half, leaf-mould one-fourth, and as much silver sand added and well mixed through it as will keep the whole open and porous. This compost we never sift nor chop with a spade, but pull it to pieces with the hands. Those who cultivate these plants need not be afraid of the soil being too rough, for it is best when the lumps are quite the size of pigeons' eggs. Before attempting to build the cone, the number of plants likely to be required must be struck for the purpose. For a cone 5½ ft. high from the ground, about two hundred plants will be required; for one of smaller dimensions, a proportionately smaller number will be necessary. This is the best time in the year for striking the cuttings, and if

healthy plants be put in at once they will be rooted in three weeks. The cones may vary in size and height, from 2 ft. to 6 ft. and upwards according to the space and convenience at command of the cultivator. We have them growing from 4½ ft. to 6 ft. in height, and they are beautiful objects in the conservatory, and form a fine background for such bright-flowering subjects as Azaleas, Deutzias, &c. For making a cone, a strong iron frame will be required, of the height to which it is intended to build the pyramid. Instead of the trellis being attached to a pot, we have dispensed with this, and substituted a block of wood turned upside down. When we used pots, we found great difficulty in moving the cone from one place to another; the mass of coil caused it to be top-heavy; the pot was in danger of being broken, and thus upsetting the whole fabric. As the soil is not required in the pot, but above, we now use a block of wood about 19 in. or 11 in. wide at the rim, and 14 in. or 15 in. wide at the base, with a hole through the centre to allow the superfluous moisture to escape. The trellis must be wired prettily closely; the rings should be more than 2 in. from each other, and the uprights must be made secure to the block. We then put a large crock over the hole in the centre of the block, and a few smaller pieces; then all is ready for fixing in the plants. A few tough turves are secured, and from these we cut narrow strips, half an inch thick, or less. A course of these strips is placed inside the trellis, which in its turn is filled with the prepared compost for the plants, and then a layer of plants. We just make the plants secure in their position, and then add another course of narrow strips of turf, which is again filled in with the compost, and then another course of plants, and so on to the top. The chief points in building the cone are to make the whole solid as the work proceeds, and the junction where the plants are inserted should be as near half-way between the wires as possible, that there need be no danger of the roots being broken by any vibration of the cone when moved from place to place. The work should be done neatly and cleanly, and, when finished, the whole should be carefully watered with clean water, delivered from a fine-rose water-pot. The first watering should be sufficient to moisten the whole mass of soil; afterwards the watering need not be heavy, but frequent. From the fact that the plants are growing in a pile of earth, exposed on all sides to the drying influence of the atmosphere, it is obvious that they do not require a deluge at once, but they must have it frequently. As soon after the cone is made as possible, just while the plants are inclined to droop a little, we peg all the shoots close to the earth, and the small roots, as soon as they are formed, run into the new soil; and the extra food thus secured gives an increased impetus to the plants. The plants are struck in February, and the cones are built up in March, and during the summer season they are under the shade of Vines. By the middle of September they are fully developed, when they are moved to the conservatory, and continue in excellent health until the September following, when we have a fresh set ready to succeed them. The best *Lycopods* I find for growing as pyramids are *L. denticulatum*, *L. variegatum*, *L. Mertensi*, *L. Mertensi variegatum* (the variegation of this often runs out), *L. formosum*, and two or three forms of *L. stoloniferum*. *L. formosum* makes the handsomest cone; and *L. denticulatum variegatum* throughout the winter season resembles a pillar of snow. This latter must be seen for its beauties to be appreciated. R.

VANDA CATHICARTI.

EARLY this week we saw at Glasnevin, for the first time, a flowering specimen of this *Vanda*, which is regarded by Dr. Hooker as being "by far the noblest species of the noble genus to which it belongs." As regards mere floriferous show and beauty, however, we scarcely feel inclined to go this length, for in these respects *V. suavis*, *V. insignis*, *V. cœrulea*, &c., are perhaps more striking; otherwise we entirely subscribe to Dr. Hooker's dictum as regards this grand and most interesting species. The plant itself a good deal resembles the well-known *Renanthra cœcinea*, but is somewhat stouter. The flowers, which are borne on a pendent lateral spike, are quite marvellous in their substance, structure, pencillings, and polish. Individually, each is roundish in outline, wax-like in substance, and about 2 in. or 2½ in. in diameter. The sepals and petals are concave, somewhat incurved at the edges, and on a ground of pale yellow or straw they are singularly and beautifully streaked transversely with pencil-like lines of chocolate red. The lip, in itself a study, is smaller than the petals, reniform in shape, having a crenelled margin of yellow, the centre and central ridge white, and in substance and gloss resembling polished ivory or porcelain. The mechanism by which the lip is hinged at the base is so delicate that the slightest touch or movement causes it to oscillate freely by its own weight. The column is very massive and striking, notably so by reason of the two eye-like processes which from the apex seem to mimic and stare at you like a thing of life. As far as we know, the plant at Glasnevin is the first

which has flowered in this country. To Messrs. Veitch, we believe, attaches the credit of being the first to flower it in England, somewhere about the year 1870. It is still, however, a rare plant in collections. It is one of the many valuable and interesting discoveries of Dr. Hooker in Northern India, where he met with it many years ago. Its successful introduction to Europe is, however, of only very recent date. The normal number of flowers on a spike is about half a dozen; but we doubt if any specimen yet flowered in British stoves has shown that number.—"Irish Farmers' Gazette." [This plant first flowered in England in Mr. Charles Stead's collection at Baildon, near Leeds, in 1869, and again in 1870; the specimen in question was 6 ft. in height, and it bore five spikes, each being furnished with from four to six flowers. The plant grows best in a partially shaded East India-house or plant stove, where it is syringed several times every day during hot weather. It grows more luxuriantly than any other *Vanda*.]

JAPANESE VASE GARDENING.

THE Japanese are now well known to be the most enlightened of all the Indo-Chinese races; hence it is not surprising to find that gardening in Japan is, as it has indeed long been, in a highly developed state; and although Japanese progress has necessarily not been exactly in the same direction as our own in matters horticultural, nevertheless the results obtained are



A Japanese Vase Garden.

none the less remarkable; indeed, their popular plants, most of which are improved cultural forms of their own indigenous wild flowers, are always welcome to our gardens; and this is especially so in the case of Chrysanthemums, Lilies, Irises, Primroses, Hydrangeas, and hardy evergreen and flowering shrubs of various kinds made familiar to us by Fortune, Lobb, Siebold, and other Japanese travellers and collectors. Among other systems of culture the Japanese cultivators are especially noted for their skill in dwarfing many of their most popular trees and shrubs, such as Oaks, Plums, Almonds, and Conifers, these being employed in various ways in the decoration of their dwellings. At a recent meeting of the Royal Horticultural Society, Mr. Moseley, late of the "Challenger" Expedition, exhibited a series of highly interesting Japanese books illustrated with native wood engravings, showing the culture of silk and Rice; one volume, too, was especially devoted to the illustration of miniature indoor gardens formed of dwarfed trees, shrubs, and flowering plants of different kinds, these being arranged in bowls or vases of copper, bronze, or porcelain, varying from 12 in. to 18 in. in diameter. We have all heard of a "storm in a tea cup," but in a bowl about the size of an ordinary soup plate, the Japanese florist contrives to form a landscape garden consisting of hill-side, rocks, rivulets, waterfalls, and other imitations of natural scenery, the whole embellished with living, growing, and flowering, and even fruiting trees and shrubs of proportionate size, as shown in our illustration sketched from a Japanese work now before us, and in which there are figures and directions for the due elaboration of these miniature gardens. Notwithstanding the fact that these, from our point of view, are

merely toy gardens, they are very popular in Japan, and some of the best examples are not only highly esteemed by their owners, but are willingly purchased at what would to us seem enormous prices by the wealthier native amateurs, these high prices being due to the fact that the time occupied in dwarfing and thoroughly establishing some of the trees and shrubs employed varies from five to twelve years.

B.

THE KITCHEN GARDEN.

POTATOES, AND THEIR PRODUCTIVE QUALITIES.

EARLY last year I had a piece of ground well prepared for Potatoes by dressing it heavily with rubbish-heap refuse, consisting chiefly of vegetable matter, no Couch Grass or Bindweed being allowed to be taken there; these are always taken to the smouldering heap. The ground was then trenched three spits deep, putting the material just named into the bottom of the trench, and laying the soil up in ridges 27 in. wide. In April I had the furrows drawn a little deeper, in which I planted the Potatoes, covering thickly, and almost level with the top of the ridges, with a mixture of burnt earth and other rubbish, such as hedge-shearings, prunings, &c., and leaf-mould and lime which had been well mixed, and which had laid for some months before being used. The crop was dug from the 4th to the 9th of September, and the following is the average weight of 10 ft. of the rows, linear measure, the distance of each sort, from row to row, being 27 in. Brownell's Beauty, produce from 10 ft., 28 lb. 14 oz., remarkably clean-skinned and fine in appearance, very few small, no disease, a sort which, when better known, must soon get into general cultivation, fine in quality when cooked. Early Rose, 25 lb. 12 oz., good in size, dead ripe, no disease, of fair quality when cooked. Brosee's Prolific, 25 lb., good in size, not ripe, no disease, grown out, close in quality. Red Flukes, 24 lb. 13 oz., worthless from growing out, haulm growing, no disease, very close in quality. Early Vermont, 22 lb. 6 oz., good in size, no disease, dead ripe, of fair quality. Violet-eyed, 21 lb. 10 oz., good in size, tops green, tubers ripe, fine sample, excellent in quality, a local sort, similar to the Fortlyfold, but with no white on it, eyes violet or purple, a heavier cropper, a first-rate second early, and an old favourite sort in this neighbourhood. Advancer, Cattell's, 21 lb. 3 oz., good in size, no disease, tops green, tubers ripe, and of fair quality. Griffe Castle, 21 lb. 1 oz., good in size, no disease, tops green, very much grown out, close in quality. Marquis of Lorne, 20 lb. 12 oz., good in size, no disease, ripe, clean-looking, and good in quality. Fortyfold, 20 lb. 5 oz., good in size, no disease, tops green, tubers ripe, and excellent in quality. Improved Victorias, 20 lb. 4 oz., good in size, no disease, not ripe, begun to grow out, good in quality. Late Rose, 19 lb. 13 oz., very large, no disease, ripe, of fair quality. Jersey Blue, 19 lb. 11 oz., good in size and quality, tops green, unripe, became very much affected by disease after being taken up. Extra Early Vermont, 19 lb. 11 oz., very large, no disease, dead ripe, good in quality. Dalmahoy, 19 lb. 2 oz., good in size, no disease, tops green, tubers ripe, good in quality; became much affected by disease after being taken up. Williard, 18 lb. 11 oz., good in size, no disease, dead ripe, very close and inferior in quality. Hundredfold Fluke, 18 lb. 11 oz., of medium size, no disease, not ripe, close and inferior in quality. Red Regent, 18 lb. 1 oz., good in size, no disease, tops green, much grown out, close and inferior in quality. King of Earlies, 17 lb. 4 oz., of medium size, no disease, ripe, close in quality. Climax, 17 lb., good in size, no disease, dead ripe, good in quality. Compton's Surprise, 16 lb. 10 oz., good in size, no disease, not ripe, close, and bad in quality. Snowflake, 16 lb. 9 oz., of fair size, no disease, ripe, excellent in quality. Early Perfection, 16 lb., 7 oz., of fair size, no disease, tops green, skin firm, close in quality. Bryanstone Kidney, 15 lb., of good size, no disease, tops green, unripe, close in quality. Rector of Woodstock, 12 lb. 12 oz., of medium size and fair quality, no disease, dead ripe. Fluke, 12 lb. 10 oz., of fair size and good in quality, no disease, ripe. Alpha, 12 lb., 6 oz., of good size and quality, no disease, dead ripe. Devonshire Reds, 12 lb. 5 oz., of medium size, no disease, unripe, close in quality, and very deep-eyed. Louise of Lorne, 11 lb. 10 oz., of medium size, no disease, unripe, much grown out, inferior in quality. Wyatt's Prolific, 10 lb., of medium size, and good in quality, no disease, dead ripe. Red Emperor, Somerset Reds, Carter's Main Crop, 9 lb. 6 oz., good in size, some diseased, tops green, tubers ripe, second-rate in quality. Early White Don, of fair size, but rather close quality, no disease, dead ripe. Jackson's Kidney, 6 lb. 8 oz., small, no disease, dead ripe, good in quality. Wonderful Red Kidney, 5 lb., very small, a few diseased, dead ripe, yellow, and close in quality.

No stimulating manures of any kind were used, or the haulm would have grown too strong, and probably very few Potatoes would have been produced. It will be seen that Brownell's Beauty heads the list, and a fine handsome Potato of good quality it is, nearly averaging $5\frac{1}{2}$ lb. to each stalk. Early Rose is the next heaviest, being a fraction over 2 lb. 9 oz. to the foot, but in wet seasons it is inferior in quality. Brosee's Prolific is the next heaviest cropper, producing $2\frac{1}{2}$ lb. to the foot, and averaging $3\frac{1}{2}$ lb. to each stalk. Of some of the sorts I had but few, but these were very large, having been sent me by a friend who had exhibited them: I therefore planted them further apart, and although the yield was not so great per foot run, the produce of the individual stalks was very satisfactory—thus Extra Early Vermont averaged 5 lb. 1 oz. to each stalk, and Late Rose 4 lb. 1 oz., while the produce of one stalk of the latter alone weighed $6\frac{1}{2}$ lb. Marquis of Lorne averaged $2\frac{1}{2}$ lb., and William, 2 lb. 9 oz. The above was simply a trial of sorts, the Lapstone and Regent being the standard of quality with which, when cooked, they were compared. My stock sorts for the general supply, after the usual early kinds are over, are Ashleaf and Lapstone, Regents and Victorias, and this year Brownell's Beauty, of which I have bought several sackfuls, some of which will be disposed of to cottagers who are anxious to grow it after seeing it here. Carter's Ashtop Fluke, or, as it is sometimes called Haigh's Seedling Lapstone, for dryness, mealiness, and flavour is the best of all Potatoes. Snowflake even does not equal it for mealiness, although the latter is whiter and handsomer in appearance. The Lapstone well repays extra good culture, and should be grown on well-trenched ground, as it produces great numbers of tubers to each stalk, and they are small if not grown under favourable circumstances. Regents and other strong-growing kinds I grow in the field, 3 ft. apart. I plant them 6 in. or 7 in. deep, and do not earth them up, but I keep the ground well hoed between them. About the 20th of July Turnips are sown for sheep between the Potatoes; a man goes between each row and shakes the seed from an ordinary square powder canister, in which a small hole has been made through which the seed can pass. It is then lightly covered with a rake. The Potatoes were dug the second week in August, care being taken not to injure the Turnips, which were then showing their first rough leaves. The Potato haulm was laid in rows on the ground the tubers previously occupied, and was left there to wither. At the approach of rain the Turnips were manured with 5 cwt. of guano sown broadcast, the field consisting of 2 acres, 10 poles, and hand-hoed as soon as they were large enough. In November this field afforded a week's keep for 320 sheep, which well manured it for this year's crop of Potatoes; it has since been turned up in 3 ft. ridges, exposed to what little frost we have had, and it will be planted as soon as favourable weather sets in.

JOHN GARLAND.

Killerton, Exeter.

SALADS AND SLUGS.

EVERY cultivator knows by bitter experience how slugs destroy the various kinds of salading. Hardly has a green Lettuce or other salad leaf appeared aboveground than these marauders are after it; and during the whole progress of existence, from seed-bag to salad-bowl, they never leave it if they can help it, and if the salad be not washed scrupulously clean, they will even follow it there. But during the winter, the cultivator has mostly a respite from slugs, for the first few crisp frosts, if they arrest growth in the plants, also freeze out or off the slugs; but this winter they have clung to the salads all through and finished many of them, Lettuces in my case being smaller in February than they were last October, and the greater part have disappeared altogether. Fortunately, slugs are so far fastidious in their food that they will eat but little Endive as long as any sweet Lettuces remain; hence Endive still abounds in gardens, and will now be perforce the basis of many a salad for several weeks to come, it being a trifle too bitter for the palates of the slugs. In winters like the present the destruction of slugs is a difficult matter. Hot lime will kill them while it remains hot, but during the last five months it has hardly got near to the salads before it cooled and slacked. The slugs did not seem to mind it in the least, and feasted away on the Lettuces to their hearts' content, even though the soil in which they were grown was as white as a chalk-pit with repeated dustings of hot lime; in fact, during such abnormally wet and mild winters as the present the slugs are far more than a match for the salads, as is proved by the scarcity of the latter in many gardens. It is also far less difficult to preserve good salad plants in the open air during a severe winter than during one similar to that just passed through. Those cultivators have been fortunate who have had plenty of frames, pits, or floors of orchard-houses in which to store their salads, and thereby protect them from the slugs. Those intending to sow Lettuces and other saladings in

the open air should remember that the earth is full of these pests, and should sow the seeds in pots or boxes under glass; meanwhile dressing the land over with hot burnt earth, ashes, lime, charred refuse, &c., to get rid of the superfluous stock of slugs bred by the mild, wet winter, before committing young salad plants to the ground.

D. T. FISK.

SALT AS A MANURE.

UNDER this heading I noticed two paragraphs in THE GARDEN recently, and believing that the statements which they contain may tend to mislead the inexperienced, I beg to offer a few remarks thereon. The first paragraph recorded the fact that an American cultivator had had a medal given him for a certain set of experiments in agricultural chemistry, which went to prove that the best manure for Potatoes was salt and soot. That salt may, under certain circumstances, be helpful to the Potato crop there can be little doubt in most soils and situations; however, salt and soot alone will not continue on the same ground to suit Potatoes or anything else. The only circumstances under which salt and soot alone will give greater crops Potatoes than any manure or combination of manures, is when in the soil all the necessary elements exist in due abundance with a deficiency of salt. Such a condition of things in many parts of America can easily be conceived. Salt is a very soluble substance, and in inland districts far from the sea it is either carried down into the sub-soil by means of rain or conveyed off the land in the crop. Now, as all crops require some salt, it follows that land continually cropped, and the crop annually removed, in time gets exhausted of this necessary element, and although much of that which is removed may be restored in the form of manure, still much is lost by being filtered away in the earth. Again, crops grow in proportion to the presence of all necessary elements, and should one be deficient a loss will be sustained. Different crops, too, require the different elements in different proportions. Thus Wheat contains far more phosphorus than Potatoes, and Potatoes contain far more potash than Wheat, and far more common salt, both in the haulm and in the tubers. Now much of our farmyard manure is decayed Wheat-straw. In time, therefore, our soils get exhausted of salt, while the other elements accumulate. Under such circumstances "no manure or combination of manures" will have anything like the effect of salt. As for soot, it is well known that the stimulating effect of it is due to the ammonia which it contains; and, in addition to ammonia, soot generally contains small quantities of gypsum, nitric acid, &c., and it is to these that "clear soot water" owes its stimulating properties. The other paragraph referred to gave directions for the application of salt to the ground as manure. The first statement was to the effect that salt acted most beneficially on light, sandy soils. There can be no doubt of this, as it is these soils that part with the salt most readily when deluged with rain, as most soils have been during the last winter. Whenever such land lies near the coast, and is subject to rains off the sea, an application of salt would be a superfluity. Dr. Madden states that the rain which annually falls at Penicik, near Edinburgh, contains so much salt as to convey to the land by this means alone as much as 649 lb. to every acre. Your correspondent also recommends its application at the rate of 1 lb. to 1½ lb. per square yard. This is, in round numbers, from 4000 lb. to 6000 lb. per acre. No wonder he recommends putting it on in winter on dug ground "for the rain to wash it in!" The rains would not only need to wash it "in," but "away." Why, such a dose would kill every green thing! Potatoes require as much of this compound as most crops, but there is no more taken from the soil by the heaviest crop of Potatoes than 200 lb. at the utmost, calculating the crop to be 40 tons of tubers and 80 tons of tops. Supposing such quantities as recommended to do no harm, the surplus, especially on a "dry, sandy soil," will be simply washed away by the rain, and lost. A tenth part of the above is surely sufficient, or say 1 lb. to every 10 square yards, and applied in the case of Potatoes after planting, and in the case of Green crops a week or two before, or afterwards as a top-dressing. In inland ground a slight sprinkling of salt in this way benefits all the Cabbage tribe immensely; indeed, all sea-shore plants are benefited by it, and the originals of our race of Cabbages are sea-side plants. They are as much benefited by the application of salt as Seakale or Asparagus; winter Broccoli especially repays with interest such a dressing.

Hope Park.

ALEXANDER HONEYMAN.

Mistletoe on the Oak.—Is not "J. F. S." (see p. 203) mistaken in stating that Mistletoe is found growing on Oaks in Windsor Park? It is generally believed that there are but fifteen known Oaks upon which Mistletoe is found growing in England. They are at the following places, viz., Eastnor, Herefordshire; Badham's Court, near

Chepstow; near Plymouth; Barningford Farm, Dunsfold; Jedstone Delamere, Herefordshire; Knightwick Church, Worcestershire; Hendre, Monmouthshire; Bredwardine, Herefordshire; Forest of Deerfold, Herefordshire; Plas Newydd, Anglesey; Frampton Severn, Gloucestershire; Lee's Court, Faversham; Lindridge, Worcestershire; Hackwood Park, Basingstoke; Cheltenham, Gloucestershire. It would be of interest, too, if authenticated cases of Mistletoe growing on the Oak could be added to the list. In East Kent Mistletoe grows freely on the Lime, Thorn, and Sycamore, sparingly on the Apple, wild Service Tree (*Pyrus torminalis*), Magnolia glauca, and on one Oak. There is growing on a lawn in the centre of the town of Faversham an old Acacia tree with a very large bunch of Mistletoe growing on it: this is the only instance I have known of Mistletoe growing on the Acacia. Can any one tell me if the Loranthus, that is said to grow so freely on the Oaks in Germany, has ever been found growing wild in this country? and also if it is the same variety that is found growing on the Red Gum Tree (*Eucalyptus resinifera*) in Australia?—JAMES PINK, *Lee's Court, Faversham.*

—A few years ago I saw several young plants of Mistletoe growing on the dwarf young Apple trees in the gardens at Bradfield, near Collumpton. The seeds had been inserted in the crevices of the bark and where the spurs started, and had thus struck root. It would be interesting to try the seeds on other trees, as mentioned by your correspondents (see pp. 145 and 203). I have seen Mistletoe growing freely on Thorns at Kwole Park, Sevenoaks, Kent, as well as on Apple trees in that neighbourhood; but it is not found in this district, although there is such a large acreage of land under orchards.—JOHN GARLAND, *Killerton, Exeter.*

—I have found that Mistletoe is more frequently found on Thorns than on any other tree. The very largest pieces of it I ever saw were on a Lime. I once cut a piece from that tree that was 5 ft. in diameter. At Hackwood Park, in Hampshire, it grows on the following trees, viz., Oak, Lime, White Beam, two varieties of Maple, Apple, Thorn, and Mountain Ash. This is the greatest number of trees I have ever noticed Mistletoe on in one place.—H. J. C. GRIMSTON.

HINTS TO PRESS CORRESPONDENTS.

NEVER write with pen or ink. It is altogether too plain, and doesn't hold the minds of the editor and printers closely enough to their work.

If you are compelled to use ink, never use the blotting-pad. If you drop a blot of ink on the paper, smear it off. The Intelligent Compositor loves nothing so dearly as to read through the smear this will make across twenty or thirty words. We have seen him hang over such a piece of copy half an hour, swearing like a pirate all the time.

Don't punctuate. We prefer to punctuate all manuscript sent to us, and don't use capitals. Then we can punctuate and capitalize to suit ourselves, and your article, when you see it in print, will astonish, even if it does not please you.

Don't try to write too plainly. It is a sign of plebeian origin and public school breeding. Poor writing is an indication of genius. It's about the only indication of genius that a great many men possess. Scrawl your article with your eyes shut, and make every word as illegible as you can.

Avoid all palstalking with proper names. We know the full name of every man, woman, and child, and the merest hint at the name is sufficient. For instance, if you write a character something like a drunken figure "8," and then draw a wavy line, and the letter M and another wavy line, we will know at once that you mean Samuel Morrison, even though you may think you mean Lemuel Messenger. It is a great mistake that proper names should be written plainly.

Always write on both sides of the paper, and when you have filled both sides of every page trail a line up and down every margin, and back to the top of the first page, closing your article by writing the signature just above the date. How we do love to get hold of articles written in this style! And how we would like to get hold of the man who sends them! Just for ten minutes. Alone in the woods, with a cannon in our pocket! Revenge is sweet.

Coarse brown wrapping paper is the best for writing your articles on. If you can tear down an old circus poster and write on the pasty side of it with a pin stick, it will do still better.

When your article is complete, crush your paper in your pocket, and carry it two or three days before sending it in. This rubs off the superfluous pencil marks, and makes it lighter to handle.

If you can think of it, lose one page out of the middle of your article. We can easily supply what is missing, and we love to do it. We have nothing else to do!—Burlington Hawk-eye.

Old Mortar for Succulents.—"D." (see p. 103) recommends "sandy loam and a fourth part of dry mortar beaten up into a rough powder" as a compost for Aloe variegata, and doubtless it may succeed in such a compost. I have, however, discontinued lime-rubbish in soil for Cacti or succulents generally, because experience has convinced me that it was not beneficial or in any way necessary. I consider this a question of importance, particularly in the United States, which suits succulents so well, and where they are fast coming into favour. What has Mr. Croucher to say on the subject?—WILLIAM FALCONER.

Pansies in Paris Gardens.—Pansies are by far the most numerous early spring flowers in Paris gardens of all kinds. They are very beautiful just now—the flowers attaining a very unusual size, perhaps owing to the beds of rich light earth in which they are planted, or it may be owing to race. Free-growing varieties of the old races of garden Pansies are worthy of more attention than they receive with us as early spring flowers. They are more beautiful than the hybrid kinds so popular of late.—V.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

SEED SOWING.

MARCH dust was probably never more anxiously looked for by cultivators than this year. Everything has been so saturated with wet that seed sowing had almost become impracticable; many crops will therefore be unusually late this year. True, April may remove most of our difficulties; but should it shower down an excess of rain upon us, the prospects of a fruitful season will be sadly blighted, for the soil is, in most cases, cold and sour as well as wet. Seeds or plants put into the ground, lie long before springing up or making any effort to grow. Every available expedient should be employed to forward crops out of the ground rather than hasten them into it, and also to assist them as much as possible to overcome the excess of moisture when once sown or planted out. Potatoes, Peas, Onions, Cauliflowers, Saladings, Beans, &c., may all be forwarded by being sprouted and pushed on to some extent in houses, frames, pits, cellars, sheds, window gardens, or other places. These and many other plants thrive well if transplanted after they have made some progress. Then, again, all the sowings of Cabbages, Broccoli, Savoys, Brussels Sprouts, Kales, &c., usually made in the open air in the spring, had better be made under cover this season. In this way the plants will be likely to escape the grubs and the slugs, as well as be got up to time. Nothing is so injurious as damp beds for seeds. They are almost as fatal to them as to ourselves. Imperfect development and all kinds of constitutional diseases spring forth from such sources, and it is seldom that healthy plants or good returns result from such beginnings of life. The seeds either rot outright or spring forth too soon, and leave most of their growing or staying powers behind them. Besides, by sowing and planting as many crops as possible in dry quarters for a time, a good deal may be done in making seed beds or drills more dry and comfortable for the seeds by the simple expedient of sprinkling a little dry ash or burnt earth under and over them. This is of immense service to the seeds in such seasons as the present. A considerable heap of dry charred refuse, burnt earth &c., is a possibility in every garden, provided proper forethought is exercised. Everything that will burn should be preserved for this purpose—all small prunings and cuttings, roots of Brassicas, tops of Asparagus, Jerusalem Artichokes, Potatoes, &c. Some of these, such as the roots of Cabbages, Broccoli, &c., should be dried first to enable them to burn to any advantage. Such materials as these, with a faggot or so of fire-wood, carefully lighted and consumed without flame, will form a large heap of charred refuse. The fires should be kept smothered in with weeds and refuse of all sorts—clay, loam, or other earth—the object being, in fact, to char the refuse and make as large a heap of ashes or burnt earth, &c., as possible, during the process of combustion. When the fire goes out—which may be days, or even weeks where the heaps are large—remove the whole of the residuum under cover. It may be sifted and sorted in wet weather, reserving the rougher charred pieces for potting or other purposes, and all the finer soil, ashes, &c., for seed sowing. This material possesses at least two of the most valuable qualities, viz., dryness and cleanliness. It is hardly possible to exaggerate the importance of either or both of these qualities as auxiliaries to seed sowing or rather seed germinating in a season like the present. Draw drills or rake a bed smooth for Onion seeds, for instance; then sprinkle the surface, or scatter along the base of the drills a sprinkling of the dry burnt refuse; sow the seeds and cover lightly with this material, and they will come up with a rapidity, strength, and regularity of plant unknown with crops that are cast into the saturated soil without any assistance. These dry dressings are also capital antidotes to slugs and worms. Where either abound, a little quicklime should be added to the burnt earth, &c. As birds abound this spring, wet the seeds and roll them in red lead before sowing, or slightly sprinkle them with paraffin oil.

D. T. FISH.

NOTES OF THE WEEK.

THE SCARLET WINDFLOWER (*Anemone fulgens*).—There can be no doubt that this is a very variable plant, but as it propagates itself from seeds, this fact need scarcely elicit surprise. During the past week we have received fresh blooms from several quarters. A flower sent us by Mr. G. F. Wilson was exactly $3\frac{1}{2}$ in. in diameter, and consisted of fourteen petals; of these the breadth of the widest did not exceed $\frac{1}{2}$ in. Another flower sent us by the Hon. and Rev. J. T. Boscawen from his garden in Cornwall, measured $4\frac{1}{2}$ in. in diameter, and had only eight segments, each of which was 1 in. in breadth and bluntly rounded, not pointed (as in Mr. Wilson's flower and in our coloured plate published last week), the colour also being a more vivid scarlet. Semi-double blooms of *A. pavonina*, and also flowers having a yellowish ring around the central tuft of blue-black stamens, have likewise been sent by other correspondents, and from these, and other information at hand, it is evident that *A. fulgens* runs into the scarlet forms of the common garden Windflower (*A. coronaria*) on the one hand, and into those of *A. stellata* on the other. Nevertheless, the plant has a distinct habitat from either, and in gorgeous beauty is unsurpassed by any other variety of Windflower.

NEW RACES OF CINERARIAS.—Messrs. Vilmorin & Andriens, of Paris, have of recent years taken considerable pains to differentiate (to use a long word) several races of Cinerarias of much value for our greenhouses. Most important, perhaps, of these are the new dwarf kinds with large and finely-formed flowers. We have lately had an opportunity of seeing these in flower and at their full size, and can testify to their merit and distinctness. The dwarfness is not owing to culture under the same conditions as those under which the old and taller kinds were grown; the height of the plants is 4 in. to 5 in. and 6 in., seldom 6 in. The blue Cineraria, a novelty in its way, is grown in quantity true from seed, and will no doubt henceforward be sought for by those who desire blue flowers in spring. A white race is also abundantly grown, and a fine red one is in course of selection, and its coming true from seed so far secured that not more than one or two plants in a hundred vary from the type desired.—V.

FERNS AND LYCOPODS AMONG ORCHIDS.—Orchids grown in pots are, as a rule, set upon inverted flower-pots on stages covered with gravel, shells, or ashes. Where this is the case, a few Ferns and Lycopods of different kinds planted here and there amongst the pots will be found to set off the Orchids to increased advantage, and also afford abundance of fronds for decorative purposes in a cut state. Among large stove or greenhouse plants the same plan might likewise be adopted.—S.

FLOWERS FOR EASTER.—Some idea of the demand which exists for cut flowers at Easter in Covent Garden may be gleaned from the fact that one grower at Acton (Mr. Reeves) has no fewer than 2000 plants of Arum Lilies and 10,000 pots of Tulips, all being brought into bloom expressly for cutting during the Easter week. Of the Tulips Mr. Reeves informs us he has already orders for 500 bunches of cut flowers, and if these average twelve in a bunch, that alone would exhaust 6000 bulbs.

A MEMORIAL GARDEN.—Seeing that the highly decorated Albert Memorial in Kensington Gardens is suffering from the effects of the weather, Mr. John Wills, in a circular now before us, suggests that it should be covered with a conservatory in five main divisions, the central portion to protect the memorial itself and shelter visitors during inclement weather, and the other four divisions to be planted with the most attractive vegetation of Europe, Asia, Africa, and America, in association with the four groups of symbolic sculpture which now grace the corners of the memorial. If this project be well carried out, we see no reason why it should not be a success.

HARDY PRIMROSES.—Of these, many acres of which are now in bloom in old-fashioned places, we have just seen a beautiful batch of seedling forms from Mr. A. Clapham, of Scarborough, among which are some self-coloured kinds of a rich velvety colour, and also some distinctly-marked fancy varieties. The Hon. and Rev. J. T. Boscawen has also sent us a collection of wild forms collected in a Cornish wood. Among these we remarked a good double, sulphur-tinted variety, and white, lilac, pink, dove-coloured, and yellow forms were also represented, the flowers being large in size; and for ordinary decorative purposes it is difficult to imagine any early-blooming hardy flowers equal to these handsome wild Primroses.

LACHENALIA TRICOLOR IN BASKETS.—Baskets filled with this *Lachenalia* are at this season of the year very pretty in conservatories or greenhouses. Suspended from the roof of one of the houses in Messrs. Veitch's nursery, are a pair of baskets filled with it, each of which is bearing no fewer than 150 or 200 spikes of tube.

shaped, yellow, scarlet-tipped blossoms. These, associated with abundance of green, healthy, pendent leaves, are most pleasing and attractive.—Q.

IMPORTATIONS OF LILY OF THE VALLEY.—A London florist states that he yearly imports from Germany 6000 clumps of Lily of the Valley, and that in addition to these he also uses several thousand single-flowering crowns. The average weight of his importations is something like four tons.—S.

FORSYTHIAS IN IVY.—In the Parc Battes, Chamnot, at present there is a pretty effect afforded by bushes of Forsythia growing on rocky banks covered densely with green Ivy, the Forsythias being quite free and unrestrained in their growth. The beauty of many shrubs is marred by nailing them primly on walls and otherwise mutilating them.—J.

ODONTOGLOSSUM LUTEO-PURPUREUM.—A plant of this *Odontoglossum* in Messrs. Veitch's nursery at Chelsea is now bearing six flower-spikes, from 3 ft. to 4 ft. in length, each being studded with from ten to twelve large flower-buds, which, when fully open, cannot fail to be very effective.—S. W.

MASDEVALLIA VEITCHIANA.—Plants of this Orchid are now flowering freely in the Exotic Nursery, Chelsea, where many of the blooms measure 5 in. in length and 2 in. in width, and possess a brilliancy of colour, to be found in few other flowers. Such plants as this that will thrive under ordinary treatment in any cool airy greenhouse can scarcely be too highly prized or too extensively grown.—C.

THE GOLDEN-LEAVED AUBRIETIA (*Aubrietia purpurea aurea*).—This is a pretty variety having pale yellow leaves and soft purple flowers, like those of the type. Messrs. Backhouse speak in high terms of its decorative qualities. If as hardy and as vigorous in habit of growth as the normal green-leaved form, it will be a useful addition to dwarf rock plants.—M.

DIOSMA CAPITATA.—Hundreds of this old-fashioned hard-wooded greenhouse plant may now be seen in the Exotic Nursery, Chelsea, thickly studded with manve-coloured woolly-looking flowers, which, associated with those of other plants, are by no means ineffective, blooms of this particular colour being comparatively scarce at this season of the year.—S.

MESSRS. VEITCH'S HYACINTHS.—These are now most attractive, consisting, as they do, of hundreds of all the best varieties, the flower-spikes of which, as well as the individual blooms, are unusually large and showy. Associated with them are Tulips, of which there is also a good collection.—M.

FINELY-FLOWERED DENDROBIUM WARDIANUM.—We have a fine plant of this *Dendrobium* in bloom in one of our cool Orchid-houses. It is about 2 ft. in height, and bears upwards of fifty blooms, one of the breaks, 29 in. in length, being furnished with twenty blooms.—LUCOME, PINCE, & Co., Exeter.

MASDEVALLIAS IN PANS.—In Messrs. Veitch's Orchid houses many of these charming plants may be seen growing in pans from 1½ in. to 2 in. deep, the soil and Moss being heaped up on the surface so as to form a mound. On this the plants are placed, and under such conditions they seem to thrive better and flower more freely than when grown in the usual way in pots.—S.

INTERNATIONAL HORTICULTURAL EXHIBITION AT CARLISLE.—At the exhibition of fruits, flowers, and vegetables to be held at Carlisle on the 6th, 7th, and 8th of next September, a sum of £1250 will be offered in prizes. Schedules are now ready, and may be had post free on application to the Secretary, Mr. John Mounsey, Victoria Hall, Lowther Street, Carlisle.

NATIONAL ROSE SOCIETY.—At the first exhibition of this Society which is to take place in St. James' Hall on July 4, upwards of £25, are to be awarded in prizes including three silver cups; a challenge cup of fifty guineas, with the condition that it must be won in three years—thus if it be won by A in 1877, and by B in 1878, only A and B can compete for it in 1879. The subscription is fixed at ten shillings, and for that each member is to receive two five-shilling tickets of admission, entitling the holders to see the Roses for an hour before the Show is open to the public. The Horticultural Club has permitted the Society to use its rooms; and all intending members can address the Secretary of the National Rose Show, 3, Adelphi Terrace, W. C.

Narcissus minor.—When we consider that this beautiful little Daffodil flowers from the middle of February to the end of March—blooming when only 2 in. high, appearing before the Snowdrops are over, mingling with Crocuses of all colours, but more compact, neat, and chaste than most of them—it is surprising that it is not more popular than it appears to be. It will grow in clay, sand, bog, or in almost any soil. It makes charming edgings, and it grows as freely as the common Daffodil.—THOS. WILLIAMS, Ormskirk.

FLOWER MISSIONS.

ONE suggestion I should like to add to the exhaustive paper on this subject given in your number for March 10 (see p. 199), viz., the distribution of tree twigs in winter. *Salix purpurea* and *cornelia* will have catkins in December, and a twig set in a phial will put out roots and leaves, and require not even the water to be changed, but merely filled up if it gets too low. I do not know whether the soft catkins, or, when they drop off, these roots and leaves, give most pleasure. By February the Balsam Poplar suits well to give away, as the fragrant, sticky buds then speedily burst indoors, and give out a wholesome perfume, as well as roots and leaves from every joint. Frequently have I known a headache to pass off by means of a smell of this Poplar's medicinal gum. Lastly, in March there will not be much patience required to wait for the bursting of Horse Chestnut twigs. The great varnished buds "glistening," as Tennyson's "Miller" calls them, visibly crack and open in a fireless room, and the drooping leaves, and even flower cones, appear and gradually straighten themselves out. No winter passes without my having twigs of all sorts of deciduous trees and shrubs in my rooms continually under observation, so interesting do I find them; and the three I have named (Willows, Poplars, and Horse Chestnuts) we distribute with the best effect along with our ordinary winter supplies of Thyme, Rosemary, Sweet Bay, Lavender, and Arbor Vitæ. There is not the slightest necessity for dropping work in winter as far as Nature's stores are concerned, and I have persistently upheld that winter is the most needful time for persevering in introducing a little refreshing smell to those who have such need of it, in a sanitary point of view.

F. J. HOPE.

Wardie Lodge.

Snowdrops.—In addition to the *Galanthi* enumerated by Mr. Burbidge and supplemented by my friend Mr. Elwes, there are two others, viz., *G. latifolius* (a native of the Russian dominions, and figured with *G. Redoutei* in the "Gartenflora"; it has exceedingly broad leaves and small flowers, like those of *G. nivalis*), and the old *G. reflexus* of Haworth, which seems to have been lost since his time; I believe, however, that I have got hold of it. A short time since a *Galanthus* was sent to me to name which I had never seen before; it had very long, narrow petals with a yellow ovary, and the inner segments tipped with this colour instead of green. I at once sent it to Kew, and the reply was that they had never seen it before, and had no specimen like it in the Herbarium, but that it answered generally to the description of the old *G. reflexus* of Haworth. I have long been looking for this plant, and it is with extreme satisfaction that I believe my wishes have at last been realized. The plant was found in an old-fashioned garden in a remote part of the north of England. It probably exists unnoticed in other gardens of a similar character.—H. HARPER CREWE, Drayton-Beauchamp Rectory, Tring.

NOTES AND QUESTIONS—VARIOUS.

Aralias in the South of Ireland.—"W. E. G." will do good work if he succeed in proving the hardiness of any of these stately plants in the South of Ireland; I would suggest his trying *Aralia catalpaefolia*, which resembles a Brodiaeanagian Ivy in its foliage, and forms a stout, low tree.—V.

Azalea Flowers and Black Ants.—Our Azaleas are being injured in a way such as I never saw before; as soon as the flower is open the ants (small black ones) eat a hole through the base, thereby disfiguring the flower. I suppose their object is the honey, as they are busily employed running in and out through the hole all day long. Has any one else observed Azalea flowers attacked in this way?—C. E. PRABSON, Chilwell.

Irregularity of Growth in *Anemone palmata*.—Last autumn two years I planted this, and the following season it flowered and did well until the leaves died off; I anxiously looked for it the next spring, but it did not show above the ground for the entire year, and I felt satisfied that it had perished, but the spot where it grew was not disturbed. To my surprise it came up this winter, and is now in flower. I should state that it was planted on a dry part of the rock garden. Was it want of moisture that prevented its coming up the second season?—D. M., Rochestown, Cork.

Capsicums.—Those who wish to grow Capsicums, either for decorative or other purposes, should now sow a little seed in a pan placed in a warm house. When up the plants should be grown on in a pit or frame where a moist atmosphere is maintained, and if placed close to the glass and abundance of water be given at the roots, in ten or twelve weeks they will make bushy plants about 18 in. in height, loaded with bright golden or scarlet fruits, each as large as a Walnut. When skilfully grouped as regards colour, they are very attractive, a condition in which they will last for several months.—S.

Early Spring Cabbages.—We are now cutting from a south border useful little spring Cabbages, which at no season of the year are more acceptable than now. We plant them 1 ft. apart each way, and they are off the ground in time to allow it to be occupied by French Beans or some similar crop.—J. GROOM, Henham.

LITTLE VASES OF COMMON FLOWERS.

EXTENSIVE arrangements of choice flowers and foliage, however desirable they may be in some few cases, especially where rare Orchids, forced flowers, and delicate Ferns are obtainable at all seasons, are completely out of the reach of many of those who, nevertheless, appreciate the every-day enjoyment of flowers in their dwellings. Doubtless our floral exhibitions have fostered the idea amongst many that it is impossible to form tasteful indoor arrangements without a profusion of choice tropical flowers and Ferns, but I am sure I derive quite as much real enjoyment from a handful of rich crimson-brown Wallflowers and golden Narcissi, or from a few freshly-picked Violets and Snowdrops in a saucer of living Moss, as I could possibly do from the most costly tropical flowers. The annexed illustration represents a few common Cyclamens and other hardy flowers, sprays of *Bambusa Fortunei variegata*, and the crimson berries of the Bittersweet *Solanum*, arranged in a tall Bohemian wineglass half filled with spring water, and the remaining half with fresh living Hypnum Moss, the fresh greenness of which contrasts well with the flowers and berries, and at the same time tones down the somewhat too pronounced silvery sparkle of the glass. B.

Preservation of Cut Flowers.—When possible, flowers should always be cut from plants that are well hardened off, avoiding as much as possible those grown in stove-heat. In Ferns, well-matured fronds only should be cut, as young ones are certain to shrivel up in a few hours after being used, and consequently spoil the effect of any decoration in which they may be employed. In cutting them a sharp knife should always be used in preference to scissors, which crush and close up the minute tubes or veins through which the moisture is drawn up, while, if cut with a knife, they remain open. If required to be kept for only a day or two, the flowers should be cut early in the morning, each variety tied into bunches by itself, and then placed in earthenware jars or wide glasses, filled with cold water, which should be put in some dark, cool place till required. A cool, dark cupboard in a cellar is an excellent place to keep them, sprinkling the shelves and sides first, and keeping the whole place as moist as possible. Many flowers, such as Rose-buds, Gardenias, Eucharis, &c., keep better if cut and put in water, or laid on damp Moss, than if left growing on the plant. Others, like Heliotropes, Tuberozes, &c., spoil much more rapidly if wet overhead, though the greater variety of flowers used are all the better for a good sprinkling before being put away. It is an excellent plan with many of the finer Ferns, such as Maiden-hair, to leave them in water for an hour or so before using them; they thus get thoroughly saturated, and will keep a whole day without wilting. When loose flowers are arranged in vases or dishes, it will be found a good plan to lift them out and place them in a basin of cold water in a cool, close place; then, in the morning, cut a short piece off the end of each, in a slanting direction, to keep the ends of the tubes open, arranging them again in fresh, cold water. Vases of flowers can be kept fresh for a week at a time if they are thus treated. Bonquets and baskets of flowers, such as come from the florists, if well sprinkled every evening and placed in a cool, damp closet, as just described, will keep fresh a much longer time than if allowed to remain in a warm, airy room.—“American Paper.”

THE INDOOR GARDEN.

CULTURE OF ACHIMENES.

THERE are few plants more beautiful or useful, or that afford such a variety of form and colour as Achimenes, ranging, as they do, from the most brilliant scarlet to white and blue, and many other shades too numerous to mention; while, as to size and form there is just as much diversity, some having long tube-shaped flowers (as in *A. picta*), and others flat and large as a crown piece (as best shown in the magnificent variety known as *A. longiflora major*), and of the most lovely shade of blue. In *A. coccinea* we have one of the most minute-flowering species of the whole family, but its deficiency in size is compensated for by the extraordinary profusion of its blooms and their brilliancy of colour, which is of a dazzling scarlet. Although one of the oldest it is still one of the best, and ought to be in every collection on account of its general usefulness and the striking contrast it affords when associated with other plants; besides which, it may be had in good condition much later in the autumn than most of the hybrid varieties, unless subjected to more heat than is necessary. *A. picta* not only affords very beautiful tube-shaped flowers, but has likewise ornamental leaves, besides the additional merit of blooming in the winter if subjected to stove-heat, and is then a fit companion for the Gesneras, to some of which it bears a close resemblance.

The value of Achimenes to amateurs and others having only a limited amount of plant room, and who are nevertheless desirous of making a rich floral display during the summer months is, that they die down and require no care in the winter beyond stowing them safely away out of reach of frost, wet, or vermin, such as rats and mice, which feast on the tubers. Another merit of Achimenes is, that they require no expensive stove-house or similar structure in which to grow them, as they will do equally well, indeed better, in any hotbed, pit, or frame, such as is usually made up for Cucumbers, Melons, &c.; while, later on, they may be grown without artificial heat, if advantage be taken of

sunshiny days to shut them up early and secure the requisite warmth in that way. Beautiful as they are when displayed in pots in window recesses in rooms, or for the embellishment of greenhouses, they are even more so when suspended in baskets, for which work their habit renders them peculiarly adapted, as they droop over in the most graceful manner possible, and show off the flowers with which they are laden to the greatest advantage. In pots they require stakes to support them, but in baskets few are necessary, as they generally present a more effective appearance, trailing naturally over the sides; and the less formal they grow the better they look. For whichever purpose they are required, it is a great saving of valuable space to start a sufficient quantity of each kind in separate pans or pots, and afterwards to divide and transfer them to the positions in which they are intended to flower.

Those who are not so fortunate as to possess a few varieties of these very beautiful flowers should lose no time in getting



A Vase of Common Flowers.

the tubers and starting them at once in any close, warm place, where the soil in which they are planted will not become dry too quickly. A hundred tubers will be sufficient for ten 6-in. pots, which are the best and most useful sizes for room decoration or ordinary purposes; but if larger be required, a few more plants will be necessary to fill them. They may be started into growth in any small pot or pan in finely-sifted leaf-soil and sand, in which they should be allowed to remain till they get 1 in. or so high, when they may be taken out and carefully separated for potting or putting in baskets. Owing to the great quantity of water they require when growing, the pots must be well drained, which should be done by filling them up to a third of their depth. The next operation is to cover the potsherds with a few half-decomposed leaves, rough fibry peat, Moss, or any similar material, in order to prevent the soil blocking them up. The best compost for Achimenes is a mixture of rough fibry peat and loam or leaf-soil, and the latter in the proportion of one of loam to two of peat or rotten leaves, in either of which the plants greatly delight, adding just sufficient sand to keep all open and porous. In potting, they should be placed equidistant, and the roots covered loosely, but not in sufficient quantity to fill the pot, as they make better progress if afforded a top-dressing later on when they get into growth and begin to form fibres around their stems, a little fresh soil at that period becoming of the greatest assistance to them. After the potting has taken place, they should again be placed where they can enjoy a warm temperature ranging anywhere between 55° and 65°, with plenty of moisture in the atmosphere, and in such a position as to be near the glass exposed to the light to keep them from drawing. The degree of heat above-named is the minimum they will endure or ought to have thus early, but if more can be afforded with a proportionate amount of humidity, they will grow all the faster and come earlier into bloom.

The baskets in which I grow them are basin-shaped, made of galvanized iron wire run round a frame made of the same, a trifle larger in size, and bound tightly together, which any handy man can do. These are then lined with rough Moss and filled up with the same kind of soil as recommended for the pots, and the plants afterwards ranged regularly around the sides by making holes with the finger between the wires in which to insert the roots, after which they should be hung up in any warm house and kept well watered and syringed till they begin to show bloom. By starting some now and others at intervals of a month or so till the end of June or middle of July, a constant succession may be maintained till quite late in the autumn and far on through the winter, by adding *A. picta* to the collection. Although they will endure all the sun we get up to the end of April, they will not do so afterwards, as they are naturally shade-loving plants; and it is therefore necessary to throw a mat over them to screen them for an hour or two in the hottest part of the day during the height of summer, or whenever the sun's rays are full upon the glass. At that season any cold frame, having a few leaves in which to plunge them, or a firm bed of ashes on which to set them, answers admirably, as in such a position they can be treated more in accordance with their requirements than they could be elsewhere among other plants. A heavy syringing overhead both morning and afternoon, or a gentle bedewing through the rose of a watering-pot during dry weather so as to thoroughly moisten their foliage and the material in which they are plunged or on which they are placed, is the course of treatment to pursue while they are growing; and to assist them in their development the house should be closed about three o'clock in the day in order to take advantage of sun-heat. The necessary staking and tying should be done before they become too advanced, or the blooms get damaged during the operation, besides which their fragile stems are not sufficiently stiff and strong to remain erect after they have attained a height of 6 in. or more. The neatest and best stakes are the long, twiggy prunings from Privet hedges or bushes, which should be cut at once and tied tightly up in bundles and laid by till required. They then become hard and almost as stiff as wire, and being nearly of the same colour as the stems of the Achimenes they are scarcely observable, thereby removing to a great extent the objectionable appearance which stakes

among pot plants generally present, and as the plants require one to each main stem, deal sticks would be much too obtrusive, and quite spoil their attraction. Although Achimenes require a moderate amount of heat and a moist atmosphere while growing, they will endure any ordinary greenhouse temperature during the summer, and if kept well watered they will last a long time in perfection.

Many growers of these charming flowers commit the mistake of allowing them to die down, or rather force them to do so by withholding water directly they have ceased blooming; and when that is the case, the tubers they form in such abundance under proper treatment are only found in the most meagre quantity, of small size, and imperfectly matured, few of which, from being in such an unripe condition, are able to survive the winter. The proper course as they go out of bloom is to place them in any pit or frame where they can be easily watered and receive a syringing occasionally, so as to keep their foliage fresh and green as long as possible, under which treatment they will develop large, plump tubers which it will be no difficulty to keep in a sound, healthy condition. After the tops have died away naturally, they should be trimmed off and removed, and the pots stored away on shelves in a shed, cellar, the back of a greenhouse, or any other position where they can be kept dry, but on no account should the tubers be picked out of the soil, as in no other way do they winter so securely and well as if left embedded where they have grown. The rapid way they increase by forming so many tubers when properly treated will always afford sufficient stock after the first year; nevertheless, in the case of new or choice varieties, it is often desirable to resort to other modes of propagation. Cuttings made in the ordinary way from the tips of the young growth when the plants have got about 6-in. high root readily if placed in sandy soil where they can be kept in a close, warm situation, such as any hotbed, frame, or under a hand-light in any forcing-house or pit, and in such a position as to be shaded from the sun. Plants so obtained will flower equally well as those raised from tubers, and any from which cuttings are taken branch out freely again, and are none the worse for being robbed of their heads. The following are a few of the best kinds:—Mauve Queen, longiflora alba, l. a. major, Ambrose Versehaeffelt, Carl Woolfarth, Stella, Parsons, Loveliness, Meteor, Dazzle, Pink Perfection, and Williams. S. J.

FRANCISCEAS AND THEIR CULTURE.

FRANCISCEAS rank amongst the finest and most distinct of flowering stove plants; they vary considerably in size, from the small, moderately compact, upright-habited *F. Hopeana*, to the broad Laurel-leaved *F. confertiflora*, which, when well grown, attains a height of 5 ft., and 3 ft. or 4 ft. in diameter; its ample dark-green glossy leaves form a perfect background to its large purple flowers, deep in colour when first opened, but, like those of most of the other species, turning gradually paler as they get older, until they assume almost a white shade. *F. confertiflora* is undoubtedly the finest representative of the genus, taking all its properties into account, although it is eclipsed in size by the largest form of *F. calycina*, called *F. calycina major*; but neither this nor the smaller form retains its leaves so well as *F. confertiflora*, nor do they grow so freely. The beauty of the flowers of most of the species is much increased by the white ring round the mouth of the tube, which is most conspicuous when they first open, contrasting well with the intense colour of the newly expanded blossoms. Another desirable property which they possess is that, in addition to opening their flowers in succession, a circumstance which prolongs their blooming over a considerable period, the time of their flowering may be so regulated as to have a continuance for several months, extending from early spring until the summer is far advanced, which much increases their value, either for exhibition purposes or for general decoration. As conservatory plants they are invaluable, as from their not requiring a high temperature, especially when flowering, they will stand that of an ordinary greenhouse. There is one thing in which several of the species, more particularly *F. confertiflora*, differ from most other plants, and that is, that, although they require a moderate heat to grow

them well, they will open their flowers freely and much finer in colour in a cool house and when closely shaded, than they do in heat; this is the more remarkable, as it is completely at variance with the requirements of the greater number of plants. There are one or two matters peculiar to their cultivation of which it is essential not to lose sight. First, at no season, either when making their growth, or even when it is completed and the wood and leaves are fully matured, can they bear the effects of the direct action of the sun, or the deep glossy green of their leaves will be quickly converted into a dingy brown, sickly hue; and, when in flower, the colour of the blooms becomes bleached in a day or two if the sun be allowed to shine upon them. The second and equally important point is that they should at all times be kept free from insects—especially that worst of all pests, mealy bug, which, if present at all, is sure to get the plants into bad condition; for not only do the flower-buds get injured by the operation of cleaning and fall off, but the leaves also suffer. Other insects will live upon *Francisneas*, but none else are so injurious.

All *Francisneas* are easily propagated by means of cuttings made of the half-ripened wood, which may generally be obtained by the end of April from plants that have made early growths in the stove. Bits of the leading shoots about 4 in. or 5 in. in length, inserted in small pots filled with sand, placed in a temperature of 70°, covered with propagating glasses and shaded, will root in a few weeks, after which the glasses should be removed; put them where they will receive plenty of light, but shaded from the sun. As soon as the cuttings have filled their little pots with roots, they should be moved into others 4 in. or 5 in. in diameter. They will all grow in either peat or loam, or a mixture of both; but, like most evergreen plants with large leaves, they grow freest in peat, which gives the deep green colour so desirable. In peat they will also make stronger shoots, which, in the case of *Francisneas*, always produce the most flowers. The peat should be of good quality, containing plenty of undecomposed vegetable fibre. For the first potting, break the soil into bits the size of Acorns, and add one-sixth of clean sand; drain the pots sufficiently, and press the soil moderately firm; pinch out the points, at the same time bending the leading shoot down in a horizontal position, which will cause more of the latent back buds to break than would otherwise happen if the principal shoot were allowed to remain in an upright position. They will grow in an intermediate temperature, but make more progress if kept through the summer at 70° during the night, with 10° or 15° higher in the daytime. Do not allow the shading to remain over them when the sun is not out; for, although as I have already stated, they cannot bear direct sunshine, if grown with insufficient light the leaves will be soft and deficient in substance, light being indispensable to vigorous health. Give air in the early part of the day, but close sufficiently soon to cause the temperature to rise for an hour or two up to 90°, syringing overhead at the same time. *Francisneas* are free-rooting subjects, and by the middle of July they will require another shift, moving them into pots 3 in. larger, at the same time pinching out the points of the shoots, and tying them out, so as to keep the plants open; in other respects treat them as before, supplying them with plenty of water at the roots. By the beginning of September they should have more air, decreasing the shading, but not dispensing with it altogether until the sun has less power. Though the different species will bear through the winter a temperature of from 45° to 50°, in the early stages of their growth it will be advisable to keep them warmer, as the object will be to get them on in regard to size. A temperature of 55° will be a suitable heat for them until the end of February, when it may be raised 5°. In March again give them a shift into pots from 4 in. to 6 in. larger, according to the kinds; the smaller varieties, such as *F. Hopeana*, *F. eximia*, and *F. Lindenii*, not requiring near so much room as the stronger-growing *F. confertiflora* and *F. calycina*. A 12-in. or 13-in. pot is large enough for a full grown specimen of *F. Hopeana*, which is the smallest; whereas *F. confertiflora*, when at its full size, will need one 18 in. or 20 in. in diameter. In other respects, as to soil, temperature, shade, and moisture, similar treatment will answer for all. Again pinch out the points of the shoots, tying them out, so as to furnish the

base of the plants down to the rim of the pot. As the season advances, increase the temperature as before, giving shade, air, and moisture as in the preceding summer. By the middle of June they will again require stopping, after which the treatment will be of a routine description. They will make good decorative plants the coming spring, and to afford a succession, there will need to be a difference made in the time during which some are allowed to remain in heat after the last stopping. As soon as the shoots have attained their full length, which may be looked for in September, a portion of the plants ought to be at once moved to a cool house, where they should have a moderate amount of air, but slightly shaded when the sun is bright, as even at that time of the year, when its power is fast waning, the leaves will be much better not exposed to its full influence. The remaining portion of the plants may be allowed to remain in heat some weeks longer until the flower-buds are quite visible, when they also should be moved to cooler quarters, giving them less water; but at no time must they be kept so dry as many things require to be, or the large-leaved ones will be found to flag when air is given them, which has the effect of injuring the foliage. They should be kept through the winter at from 45° to 50°. A lower temperature than this they do not like, and anything above it will bring them into flower too early in the spring. The plants that were allowed to stay the longest in heat until their bloom-buds were formed will go on increasing them in size through the winter, flowering the earliest, the time of which is easily regulated by giving them more or less heat. Those that were first taken out of heat will make little perceptible progress until the days get considerably longer in spring, when the increased solar warmth will cause the flowers to set, which will keep gradually but slowly increasing in size until they expand. Plants thus managed may be kept by placing them in a north house to bloom in July, in all cases shading when the sun is bright, even as early as the beginning of March. In their ability thus to set flowers in a lower temperature than that in which they have grown, they differ from most plants. After flowering they should have their shoots cut back, so as to keep them bushy. If not shortened in each season before they are started into growth, they would soon get into a loose, straggling condition. Again place them in heat; although they do not require it, still they will bear as high a temperature whilst growing as most plants. As soon as they have broken into growth they will require re-potting, giving them a shift proportionate to the condition of the plants and the size and strength of the species grown. From this time forward they will not need much, if any, stopping, except in the case of such as have bloomed early in the spring, simply managing them in other respects as in the past season. If kept free from insects and fairly treated, they will last for a number of years, assisting them during the growing season with a regular supply of manure-water. When they get into pots as large as it is desirable to put them, and the soil in these is exhausted, they may be headed back to half their size, and when they have broken, turned out of the pots and half the old soil removed, re-potting them in smaller pots. Thus treated, they can be furnished with strong-flowering shoots, even superior to what they possessed in the early stages of their existence.

The under-mentioned sorts are all deserving of cultivation:

F. CONFERTIFLORA.—A free, dense-growing species, one of the finest exhibition plants in existence, and suitable for conservatory decoration, the deep purple colour harmonising well with that of almost any other flower. It is from Brazil. There is a form of this plant with variegated leaves, the blooms of which do not differ from those of the species. It is not so free a grower.

F. CALYCINA MAJOR.—This is a large-flowering, strong-wooded kind, with ample leaves and very large, deep-coloured flowers, but the latter are not produced in such numbers as in the case of *F. confertiflora*; nevertheless, it is a splendid sort. It comes from Brazil.

F. EXIMIA.—A somewhat erect-habited plant, of moderate growth, producing large heads of purple flowers. It is a native of Brazil.

F. LINDENII.—This is a smallish-growing species, with dull coloured leaves, and very bright purple flowers. A most

desirable plant for general decorative purposes, not nearly so well known or so extensively grown as it deserves. It also comes from Brazil.

F. HOPEANA (UNIFLORA).—A small-growing species, that produces its flowers freely from short spurs up the branches as well as from the points of the shoots and axils of the leaves. The flowers are pale purple or lilac, changing to white. It is from Brazil.

Thrips, red spider, and green fly will sometimes make their appearance upon *Franeisceas*: but, from the repeated use of the syringe during the growing season, they do not often become very troublesome. Copious syringing and fumigation will be found sufficient to destroy these pests. Should mealy bug and scale appear, they must have no quarter, or they will, if allowed to get numerous, reduce the plants to a condition that precludes the possibility of their flowering satisfactorily. They must be diligently sought after during the growing season, using the sponge and a soft brush for their destruction, and when at rest repeated washings with insecticide by syringing and dipping. T. BAINES.

Primula cortusoides amœna for Forcing.—This hardy *Primula*, though seldom seen growing in pots, forms a useful plant treated in that way for the decoration of the conservatory at this season of the year. Plants of it taken up from the open ground in autumn, and potted and introduced to gentle heat, may be had in bloom from January onwards. In this way they are treated in Rollisson's nursery at Tooting, where numbers of plants may now be seen laden with large umbels of deep rose-coloured flowers, which, when associated with other plants, have a fine effect. They are also much more useful for cut bloom than any of the single-flowering Chinese varieties.—S.

Large-flowering Pelargoniums.—Some whose deficient glass accommodation necessitates crowding plants together, are just now experiencing some trouble with their show *Pelargoniums* potted into their blooming pots last autumn. Owing to the mild winter they have kept moving onwards, and they are now progressing too rapidly, seeing that they will not be wanted till May and June. A few of the most forward of them may be allowed to flower as soon as they like, but others should be pinched back slightly, an operation which, while it tends to retard the plants, will also make them more bushy in habit. As regards cleanliness, they will now require some attention, being plants prone to be infested with green fly, which, however, may be got rid of by means of fumigation with Tobacco. Some houses are, however, so badly constructed that the smoke passes off without doing its work. In that case dissolve some soft soap in hot water, and add some sulphur, and when it is cool enough for use dip the heads of the plants in the mixture, giving the leaves a final rub with a piece of sponge. This is an effectual remedy, and one which the plants appear to enjoy.—D.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

A Noble Shrub for the Conservatory.—*Aralia catalpaefolia* planted out forms a shrub or low tree of very remarkable beauty, stately in habit, and with massive foliage of fine form. The leaves are very much like gigantic Ivy leaves; sometimes they are quite 1 ft. long.—V.

Acacia coccinea.—This is not the day for *Acacias*, and many of the kinds—the better kinds even—are now seldom seen, but there is one variety that should not be lost sight of, and that is *A. coccinea*. It is valuable for two reasons, its colour, and the fact that it blooms almost all the year round.—T.

Winter Vase Plants.—Few plants are more useful for this purpose than *Common Box* in the form of good-sized specimens. It lifts with a good mass of roots, suffers less from removal than most plants, and, if carefully replanted in the reserve garden, it will keep serviceable for many years.—J. G.

Rubus roseifolius.—This interesting Bramble is useful in the cool house in winter, where it produces its flowers freely.—T.

Phajus graudifolius.—This well-known Orchid forms at this season a conspicuous ornament in plant stoves, in which in addition to its fine spikes of flower, it also possesses a profusion of striking foliage. Some old plants of it now in bloom here are furnished with from twelve to fifteen spikes of flower, and well repay any little labour which they may have entailed.—J. GROOM, *Henham*.

The Lemon Grass (*Andropogon schenanthus*).—This beautiful sweet-scented Grass, with its long, narrow, pale green, wavy leaves, light midrib, and white-powdered stem, is a fine plant for warm greenhouses or stoves. When the leaves are rubbed or slightly bruised, they emit an odour like that of the Lemon-scented Verbena (*Aloysia citrodora*); the leaves are from 3 to 4 ft. long when grown in a 32-sized pot.—R. H. B.

THE FLOWER GARDEN.

GARDEN VARIETIES OF POLYANTHUS.

AMONGST old-fashioned plants, the garden forms of *Polyanthus* occupy perhaps the highest place; in all old gardens they were ever held in the highest esteem, and they are yet in many places the chief denizens of the spring flower garden. Cultivators now-a-days find that the *Polyanthus* has expanded into a large family, and, if desirous to make their cultivation a speciality, are perhaps rather troubled to know which section is most worthy of their attention. Florists have preserved tenaciously the memory of the beautifully marked, or rather laced, forms of the old exhibition kinds; indeed, the memory of these has been better preserved than the plants themselves, as few things are now so difficult to obtain as stock of any of the fine old show varieties. The exigencies of business have of late brought up a number of named varieties, but these, alas! are all of the most valueless kind, and have little or nothing in common with their older compeers. If something more than the memory of the Gold-laced *Polyanthus* of forty years ago is to be preserved, we must take to the raising of new kinds in earnest from the very best stocks, and then perchance a future generation may be enabled to gaze upon forms with which few of the present are familiar. In the finer, more varied, and altogether more decorative section of the *Polyanthus* that has of late grown up under the heading of Fancy or Self kinds, we, however, get forms that are of the greatest value for garden decoration, used either for massing as border plants or for pot culture, some of the best kinds being as well worthy of culture under glass as any hardy plant can be. The breaking up of these into colours for bedding purposes is an undoubted gain to the spring-flower gardener, as these kinds bloom earlier than the Gold-laced forms, and are at their best early in April if the season be at all favourable. Self in white, sulphur, yellow, red, and crimson, are common, but intermediate hues of lilac, magenta, and purple are not so abundant. These, however, are hues that never have been common to the *Polyanthus*. Some of the Self kinds are absolutely perfect in form and in refinement, but this latter quality is best seen when the plants are grown under glass, treatment which is indispensable if grown for exhibition. Perhaps the greatest need is a rich golden-yellow of perfect form; there are plenty having this hue that make effective bedders, but none that come up to the florist's ideal of a perfect flower. In the London market gardens there is grown a strain of Self-coloured flowers that partake largely of the Gold-laced section in habit, but that have larger blooms, and entirely lack the lacing so peculiar to that section. These have very dark hues (some almost black), with, in the best, clearly defined lemon centres; and as a section standing out from others, or looked at as consisting of dark Self flowers, they are extremely rich and beautiful. A few of these picked out from a large bed last year furnished a little seed, and by continuous and careful selection for a few years it is possible that some really fine exhibition dark Selfs may be got out of them. It is a strain that, like the Blood-red Wallflower, can only be met with good around London.

Allied to the Fancy section, and, indeed, growing out of it, are the semi-double forms, that are sometimes called *Primula veris duplex*, but which in reality are hose-in-hose forms of the Fancy *Polyanthus*. Hitherto it has been found that the majority of these had flower-stalks that were weak and spindly and therefore incapable of holding the large heads of double blossoms which they bore erect. Of course this habit has militated against their extensive cultivation, even though many of them were very beautiful. Careful selection, however, is gradually curing this defect. A few exhibit stout, erect stems that equal the best of other kinds, and perchance, with care, these may ultimately lead to the production of a fine double strain. One variety of the Fancy class has tall stems, bearing flowers of great size and fine form, a large, bold orange eye, with a broad reddish-crimson margin, and will doubtless prove the parent of many good kinds in the future. I have this year flowered for the first time some pure white and bright sulphur in colour, and several not yet in bloom promise to add variety allied to a good habit. Seedling plants that will produce double flowers show this form at an early stage,

as the flower-buds are larger and show the coloured calyx ere the flowers are expanded.

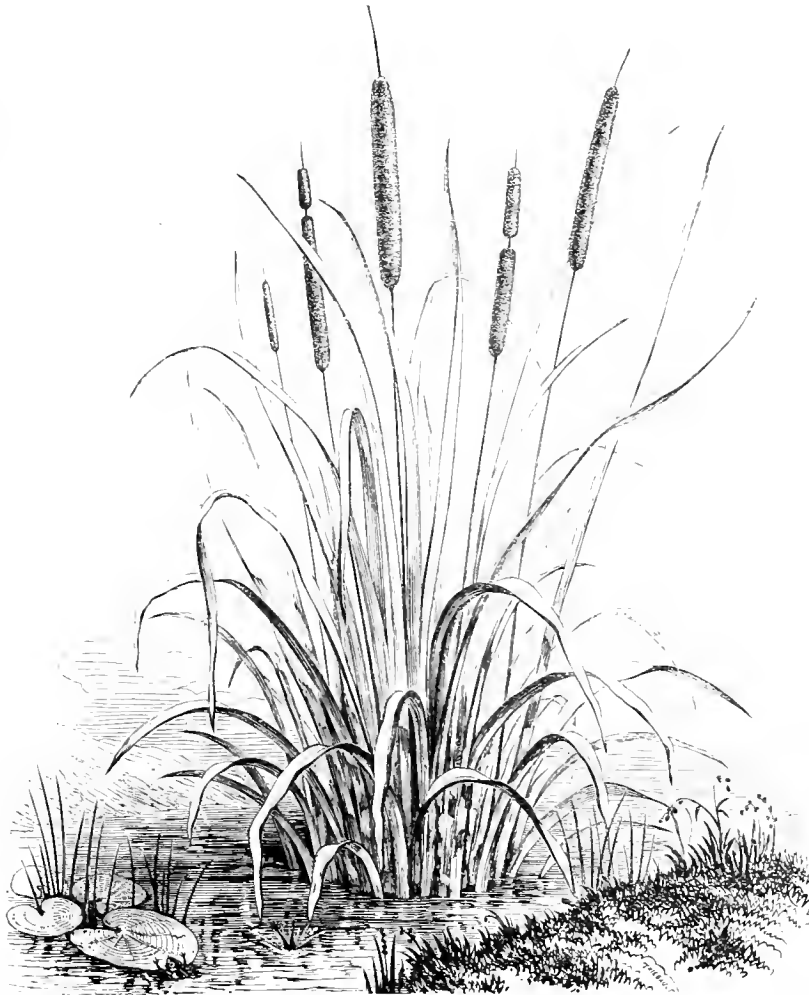
Whilst the semi-double forms of the Fancy breed are assumed to be allied to *Primula veris*, most if not all of the old garden Hose-in-hose are allied to *Primula elatior*. Perhaps one of the best known is the old white kind, a pleasing and distinct form, but not now common. It is sometimes met with in old gardens, and I have recently seen flowers of it sent from a garden in Cornwall. A large yellow Hose-in-hose, under the name of Golden Gem, received a certificate last year at South Kensington; it is a very effective border or bedding variety, and has evidently a good robust habit. From Ireland has come yet another yellow double form, the flowers of which are rather smaller than those of the other, but of a deeper hue; this is known as Golden Bedder. It is very effective as a decorative plant, and well worthy its designation. It is noteworthy that both of these are what are technically called pin-eyed, but I have seen flowers of a rich yellow form that have thrum-eyes. There is one distinguishing characteristic of these *elatior* Hose-in-hose, viz., they invariably open both flowers at once, whilst in the *veris* section the upper flower is usually expanded some time before the lower one. The Jack-in-the-Green forms of the Polyanthus are more curious than valuable; indeed, the flowers are generally small, and are too much overshadowed by the large, green calyx, which gives them their name. Of these there are various hues and forms; in some the flowers are white, in others yellow, in others red, and so on, but relatively they are so unattractive that those who have a fancy for curious plants only care to grow them.

Perhaps the smallest section of the Polyanthus is found in the double kinds, of which I know at present only two—a reddish-crimson, named Rex Theodore, and one recently imported from Lyons under the name of *P. violacea fl.-pl.* Rex Theodore is a true Polyanthus, but its flowers are much inferior to the fine double blooms of the *Primula acualis*. *Primula violacea*, on the other hand, seems more nearly allied to the double Primrose in habit, but the flowers are borne on short stalks, and are in colour purplish-mauve; this is at once distinct, and a real acquisition. Lastly, there comes in the garden Polyanthus a sort of connecting link with the Primrose, and although designated a Hybrid Primrose, is truly Polyanthus in habit. The distinction is founded on the fact that these throw up first an abundance of flowers on single stalks, exactly as the Primrose does, and then follow scapes of flowers on stiff footstalks, so that the plant begins a Primrose and ends a Polyanthus. That capital bedding kind, Queen

of Yellows, affords a good illustration of this habit; but the gem of all this section is found in Prince Charming, a really lovely variety, the flowers of which have a ground colour of rosy-peach edged with pure white, and a clear lemon eye. Although this section is not a large one, yet it consists of sufficient plants to show that it is necessary for distinction. I have thus introduced all the garden forms of the Polyanthus with which I am familiar—certainly enough to show that they constitute a large and varied family, and when to these are added the double and single forms of the Common Primrose (*Primula acanlis*), it becomes, I think, quite evident that sufficient variety may be found to suit the tastes of any ordinary grower.

A. D.

Bedfont.



Great Bulrush (*Typha latifolia*).

The Crimean Snowdrop (*Galanthus plicatus*).—This is indeed a noble Snowdrop, and one which deserves a word or two of commendation. We have a dozen or more small round beds (encircling the roots of standard Roses placed on the turf at considerable distances apart), which have been filled with this harbinger of spring for several seasons past, and the effect has been pleasing in the extreme. The additional stature of the plants and the size of the flowers render them far superior to the commoner Snowdrops for such positions, and if the effect of such an arrangement could be added to, I would suggest an edging of the Siberian Squill. It is to be hoped that the Crimean Snowdrop will continue single, and that no effort will be made by crossing, &c., to render it double. A double Snowdrop is, to my mind, a Snowdrop spoilt, robbed of full half of its natural grace and beauty. Unfortunately in the Eastern Counties nearly all the Snowdrops are infested with the doubling mania; even those growing wild in the woods are nearly all double, and I have the greatest difficulty to preserve a few patches of the single kind here from degenerating into double flowers. The

doubles are carefully eradicated every year, but hardly a season passes that numbers do not make their appearance. Hitherto the Crimean Snowdrop has shown no tendency in this direction.—D. T. FISH.

The Typhas.—Happily the taste for seeing beauty in common things seems increasing among us, and, such being the case, a few words in favour of these stately native water plants will not be amiss. They are well worthy a place in any pond or stream margin. When not over numerous in such a position they have a very good effect. The writer has grown three kinds—*T. latifolia*, *T. intermedia*, and *T. angustifolia*—and a tuft of each looked very well in a pond; but none of them should be allowed to spread much. They associate well with the large Water Dock, the Flowering Rush, the showy Loosestrife, and the Hairy Willow Herb, which all grow well in a foot or so of water.—V.

HARDY FLOWERS IN LONDON GARDENS.

THE majority of hardy flowers of which mention has been made during the past few weeks still retain an attractive appearance, and the occasional gleams of bright sunshine which we have experienced have been the means of bringing out a few additional kinds, among which may be mentioned the Crown Imperial (*Fritillaria imperialis*), plants of which are opening numerous flower-buds in warm situations in the Tottenham nurseries; strong plants, too, of *Corydalis bulbosa* are furnished profusely with reddish-purple blossoms. The long tubular-shaped purple and blue flowers of *Pulmonaria officinalis* are now very pretty, mounted on gracefully-drooping stems, and large beds of sundry varieties of the Grape Hyacinth (*Muscari botryoides*) are producing pretty spikes of blue flowers. *Sisyrinchium grandiflorum album* is producing numerous pure white blossoms in protected positions in the Wellington Nursery, where the Pasque-flower (*Anemone Pulsatilla*), growing in the form of large clumps, is pushing up hundreds of large, drooping purple blossoms. The double yellow flowers of the Marsh Marigold (*Caltha palustris fl.-pl.*) are also now very showy, peeping from among dense masses of Ivy-green leaves. The little Alpines (*Androsace carnea* and *Draba lasiocarpa*) are just now coming into bloom; and the common blue and white Hyacinths are throwing up well-furnished flower-spikes in warm places. The double Roman and the Paper-white Narcissi are just now at their best, and are being brought in a cut state to market in large quantities. Perhaps the most showy of all the hardy bulbous plants now in bloom are the various forms of Daffodils, the most distinct of which are *Narcissus minor*, *N. nanus*, and the smallest of all, *N. minimus*, the flowers of which are scarcely above the surface of the soil; *N. bicolor* is just opening its blossoms, and its allies, *N. Horsfieldi* and *N. Empress*, a seedling from the last, raised by the late Mr. W. Backhouse, of St. John's, Walsingham, are fast approaching the flowering stage, as is also that finest of all the Daffodils, *N. maximus*, the flowers of which are of a deep golden colour, and fully 4 in. in diameter when fully expanded; *N. montanus* is likewise bearing its nodding white flowers, as also are the golden-flowered forms of *N. odoratus* and the seedling varieties of *N. Tazetta*. A large batch of new seedling Narcissi is just beginning to open their flowers in Mr. Barr's bulb grounds at Tooting, and among these we noted some distinct variations, both as regards form and colour. Many of them are hybrids, the result of crosses effected between *N. Pseudo-Narcissus*, *N. incomparabilis*, *N. Macleai*, *N. (montanus) poculiformis*, and *N. poeticus*, and some of them are well worth having and preserving as distinct and effective garden plants. S. B.

MATCHING COLOURS IN FLOWER GARDENS.

MANY who can grow flower garden plants to perfection signally fail in making a display in accordance with good taste. For this many reasons exist, notably an unacquaintance with the laws relating to colour, and sometimes a want of acuteness in distinguishing between the different colours. What are called primary colours consist of red, yellow, and blue, and of these all others are simply combinations. Thus yellow and red make orange, yellow and blue make green, and blue and red make purple, and so on. Now, as the primary and secondary colours should be arranged alternately, a secondary should always be opposed to a primary. For instance, green should be exactly opposite red, and purple opposite yellow. Now, green is the complement of red, and purple is that of yellow. This may be proved in another way. Take a sheet of clean white paper and make a blotch of red in the centre of it the size of a penny. Gaze steadily at the red blotch for a few seconds, and then suddenly shift your gaze to a clean sheet with nothing on it, and a disc of green will appear. That is why we call green the complement of red, and green and red always look well in juxtaposition, whether in a flower garden or elsewhere. This is one reason why the old Tom Thumb Pelargonium held favour so long. Its leaves were a beautiful green, and one fault in many of our scarlet bedding plants is that their leaves are not a beautiful green, but often spoiled by dark zones. I have little doubt that the rising popularity of bedding Violas, in one sense at least, is owing to the fact that one class consists of purples and the other of yellows—purple being just the complement of yellow. I have a narrow border which was planted last year with one row of Golden Gem Viola next the gravel,

and behind that one of The Tory, and this simple arrangement was admired by every one who saw it. The colours were complimentary and true to Nature; it was, therefore, consistent that they should please. Blue and white, either in lines or mixed, always look well. White, however, is not a colour, and will bear placing anywhere. The same may be said of black, though it cannot be so appropriately planted anywhere. However, we have no real blacks either in flowers or in foliage. The nearest approach to black which I have seen is in Pansy Bismarck, and that is not suited for bedding. The Perilla and Dell's Beet are bronzes, and have to be complimented according to the shade which they present. In the planting of single beds, people who understand the laws relating to colour often plant, say, three colours, a central mass, a belt round that, and an edging. I have frequently seen the mistake committed of placing a strong colour in the centre; the band a complimentary colour, and the edging in harmony with the band. Now, it may seem that nothing can well be urged against such an arrangement, as such a bed is planted in accordance with the laws of colour. This is to some extent true, but such a bed will always be inferior to one planted on exactly opposite principles. In such an arrangement the centre and the band encircling it monopolise the vision, and the bed seems much less than it really is; the edging or boundary line is vague and indistinct, and it requires an effort to comprehend the whole. Planted the other way, the effect is exactly the reverse. When the centre beds of a design are arranged in harmony with each other, and the outer beds consist of complimentary colours, the central effect is agreeably subdued, while the outlines of the design stand out in bold relief, and with a distinctness not otherwise attainable. In the case of a single bed the effect is similar. Many, however, plant yearly with only one end in view—the filling of the beds, and no matter how great the medley, if the plants grow well they are content.—ALEXANDER HONEYMAN, *Hope Park*.

Substitute for *Myosotis dissitiflora*.—A short time ago a notice of this plant appeared in THE GARDEN, wherein mention was made of the unsatisfactory character of this Forget-me-not for forcing; and such is my own experience. Allow me, therefore, to point out a substitute in the old *Omphalodes verna*, in my opinion a handsomer plant than the *Myosotis*, seeing that it has not only beautiful flowers, but good foliage, a great advantage to a mass of colour, however lovely, in early spring. The plant in question is easily managed. Pull some old specimens of it to pieces, and take care of them through the summer, pinching well in all runners, to throw out which the plant has a tendency; select the strongest plants—say in October, plant them as you would Lilies of the Valley—from five to seven crowns in a pot; winter them in a cold frame, and introduce them into gentle heat (they will need very little) as wanted. When in flower, keep the runners well pinched in, and the plants will be better the older they grow.—THOMAS WILLIAMS, *Ormskirk*.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

***Leucojum carpaticum*.**—This pretty Snowflake is now in bloom. It flowers a month or six weeks later than *L. vernum*, and, unlike that species, begins to expand its blossoms when the stalk and the leaves are scarcely above the ground; the petals, too, are tipped with yellow instead of green.—H. HARRIS CREWE.

***Berberis Aquifolium* for Winter Beds.**—In a dwarf condition this is a most useful plant for furnishing beds in winter; its dark shining foliage looks all the brighter after rain, and in combination with spring flowers when crowned with large heads of yellow blossoms, it is also effective, especially when associated with such plants as *Silene*, *Saponaria*, or *Nemophila*.—J. G.

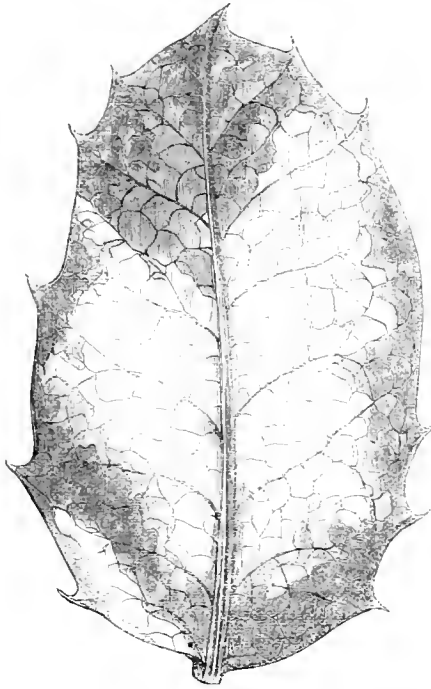
Chopped Furze v. Mice.—From experience I can testify that chopped Furze forms a complete preventive to the ravages of mice among either CROCUSES or Peas. The first year during which we occupied a new house in a garden, I had all my CROCUSES quite eaten away by mice, but after that I always placed a layer of Furze over the roots before filling in with the soil, and they were never afterwards touched.—M. ARCHER, *Drogheda*.

Double Blue Hepatica.—I should like to learn how to grow this with success. I have tried it in different kinds of soils and positions, and if it goes on much longer at its present rapid rate of decrease, I shall soon lose it altogether. The colour is so beautiful that it is well worthy of cultivation, and I shall be thankful for any information respecting it. Other varieties do well with me; all are now one mass of bloom, and since I have used the perforated zinc, recommended in your paper last year, I have managed to gather a few perfect blooms from *H. angulosa*.—ED. FARRER, JCN., *Petygarts Hill, Seaforth*.

Early Pruning of Roses.—Those who prune Roses early will in all probability get a lesson this season that may be instructive; they have been ever-green this winter, and I observe that the late frost has nipped the tender growths at the ends of the shoots, but as these will have to be cut away, no real injury will be sustained, as the buds at the base are still dormant; where, however, forcing was done some time since and the reserved buds have started, a short supply of bloom must inevitably be the result.—J. GROOM, *Henham*.

LAWSON'S HOLLY.

Ilex Aquifolium Lawsoniana is one of the most striking of all the Hollies, if not the most so. It is very near the Hodgkins Holly, with fine large leaves blotched with gold in a very effective and striking manner. The leaves are of good substance, and the plant vigorous. It is probably the finest-blotched Holly in existence.



The plant was sent out by the Lawson Seed and Nursery Company.—V.

TREES ON WHICH MISTLETOE GROWS.

I HAVE cultivated the Mistletoe on a great variety of trees, but have always failed to establish it on the Oak. It has germinated with me on that tree, and fixed its first radicle, and then died; and so I have not persevered. I am not sure that my failure has not been owing to the extreme dryness of our soil and atmosphere; so I am tempted to write and tell any of your readers who may wish to cultivate the plant, how it may be readily done on many trees (certainly on Apple, Poplar, Lime, and Hawthorn), in the hope that they will also try it on the Oak in a wet clay soil, where the atmosphere also is more or less humid. A healthy, smooth, thick branch should be chosen tolerably near to the trunk, where the bark is young, healthy, and smooth, and free from cracks. The seed should then be squeezed out of the berry, and pressed firmly on to the bark with the finger till it is made to adhere, and there left. In a day or two it will be found to have dried hard upon its bed, if unmolested by birds. If sown now, it will soon put forth two radicles, which will fix themselves in the bark on each side. These will form two separate plants, one of which will probably soon die, or be pushed out, or starved by its more vigorous twin-brother or sister (for the plant is dioecious). It will remain till autumn or next spring without any other outward growth than these two little, green, arched radicles. The next step is for each radicle (if both live) to put forth its two first leaves; in this state it again remains for another year, and not till after the third year does it get to any considerable size. I cannot help thinking that the common Mistletoe may be induced to establish itself on the Oak under favourable circumstances, yet I am told that the Oak Mistletoe is quite another species, and peculiar to that tree. Of this I have never been able to judge, as I have never seen it on the Oak. If an attempt is to be made this year, it should be done immediately, for the seeds are dropping fast. H. W.

— Some time ago I saw it mentioned in the "Hereford Times" that Mistletoe may be seen growing on Oak trees at Saltmarsh Castle, near Bromyard. We have here in the pleasure grounds one bunch growing on a grand old Acacia tree, which girths 10 ft. at 3 ft. from the ground, the bunch of Mistletoe being quite 18 ft. in diameter. There are several smaller bunches growing on other Acacia trees here; Mistletoe is also abundant on the Apple, and

near here I have seen it on the Poplar. The Thorns, both in the pleasure grounds and park, are well furnished—indeed, in some cases, overrun—with it.—JOHN GOUGH, *Westwood Park, Droitwich*.

— Mr. Pink (p. 221) can only record one instance of the Mistletoe on the Acacia. I have seen it on the Acacia at Alderley in Gloucestershire, where it also grows on the Chestnut and Lime; also at several places under the Mendip Hills, especially at Congresbury and Banwell; but it is very unusual. As compared to its occurrence on the Apple, it is as 1 to 25.—HENRY N. ELLACOMBE, *Bitton*.

NEW PLANTS.

Hypolytrum latifolium.—A graceful, broad-leaved Cyperus, from Ceylon and the Malayan Archipelago. It forms a useful, ornate, grassy-habited plant, bearing panicles of brownish flowers. It was sent to Kew from Ceylon by Dr. Thwaites, and deserves notice as a warm conservatory plant.—"Botanical Magazine," t. 6282.

Stenandrium igneum.—A dwarf-growing, fine-foliaged Acanthad from Peru, having oblong leaves of a deep metallic green colour, the midrib and principal veins being bordered with yellow, as in *Sanchezia nobilis*, the under sides of the leaves being dull purple. It is decidedly distinct and ornamental, and well deserves culture as a stove fine-foliaged plant.—"L'Illustration Horticole," pl. 266.

Lilium concolor var. *luteum*.—The crimson, erect-flowered *Lilium concolor* is tolerably well known in our gardens, but not so this distinct yellow-flowered plant, which will be welcomed by all Lily growers as affording a charming contrast to those of the typical form of the species. The size and shape of the flowers, habit of growth, &c., are the same as those of the type.—"Gartenflora," t. 855.

Curmeria picturata.—A low-growing South American stove Aroid, which in general appearance resembles some *Marantas*, the broad, undulate, margined, oblong, green leaves having a feathered band of silvery grey on each side the mid-rib. It may be grown as a fine-foliaged plant, but is not more showy than are many *Marantas*.—"Gartenflora," t. 891.

Torenia exappendiculata.—A rather slender-growing herb, bearing opposite zig-zag branches with thickened points. The purple and white tubular flowers are borne in clusters towards the apices of the branches, and are less showy than those of any other *Torenia* we know.—"Gartenflora," t. 892.

Calathea (*Maranta*) *Leopardina*.—A graceful-habited plant, having oblong, light green leaves blotched on each side; the mid-rib with darker velvety green. No improvement on the older cultivated kinds.—"Gartenflora," t. 893.

Solanum acanthoides.—A sub-shrubby, Brazilian plant, the tomentose stems of which are clothed with pinnatifid leaves often 1 ft. or more in length, the large purple flowers being borne in panicles at the apex of the young growth. The individual flowers are fully 2 in. in diameter and very showy. The plant deserves culture as a fine-foliaged, conservatory plant, or as a flower garden ornament during the summer months.—"Botanical Magazine," t. 6283.

Gongora portentosa.—One of the largest and most ornate of all the species of this curious genus of Orchids. It is a native of New Granada, where it was discovered by Mr. Wallis in 1868, and it has since flowered in several collections. The large insectiform flowers are borne on a drooping spike 1 ft. or more in length, and are of a soft, rosy colour generally, but here and there suffused with yellow or orange, the lip being profusely dotted with red.—"Botanical Magazine," t. 6284.

Boronia elatior.—A free-growing, greenhouse shrub, a native of South-West Australia, whence it was introduced by Messrs. Veitch & Sons. Nearly fifty species are known, but none are prettier than the present plant when clothed with wreaths of pinkish-purple flowers and berry-like buds. The plant was figured in *THE GARDEN*, Vol. X., p. 312, where the more important species of *Boronia* are described. It well merits culture.—"Botanical Magazine," t. 6285.

Pectis angustifolia.—A dwarf, yellow-flowered, compositae annual herb, native of New Mexico and Western Texas, whence it has been introduced by Mr. W. Thompson, of Ipswich.—"Botanical Magazine," t. 6286.

Camassia esculenta var. *Leichtlini*.—A pallid or creamy-white variety of a well-known hardy plant. It is a native of British Columbia, where it was first discovered by Mr. John Jeffrey in 1853. It has been introduced and cultivated by Herr Max Leichtlin, of Baden-Baden. If the flowers were really pure white, this plant would be an acquisition.—"Botanical Magazine," t. 6287.

CULTURE OF BALSAMS.

BALSAMS are exceedingly useful during autumn, both for conservatory and sitting-room decoration. They may be easily grown into specimens 18 in. or 20 in. high and 3 ft. in circumference, or, with a little extra care and a suitable place in which to grow them, they may be had 3 ft. high and as many through. I have grown them many years ago 4 ft., and occasionally 4½ ft. in diameter. Balsams have naturally a tendency to run into many varieties, the seed of one plant scarcely ever producing two alike. The double Camellia-flowered varieties are those which are most esteemed, their blossoms sometimes rivalling in beauty those of a finely-striped or flaked Carnation. In order to secure successions of bloom, seeds should be sown at two or three different times between the middle of March and the end of April. As the Balsam is of a vigorous habit, it is not important what kind of soil is used, provided it is of a light nature and tolerably rich. When the seeds are sown, the pot containing them should be plunged in a mild hotbed, and in a few days the young seedlings will make their appearance. As soon as they are sufficiently large to handle, they must be potted into 3-in. pots in soil of the same temperature as that from which they have been taken. They should be potted as deeply as possible without burying the lower leaves. At this period of their growth, the best position for them, when it can be afforded, is a small hotbed, where they can receive the treatment necessary to insure a dwarf and healthy growth. Great care must be taken to keep the plants as near the glass as possible, or they will soon grow up lanky and weak. When they have taken hold of the new soil, they should have a little air given on all favourable occasions. This is essential, in order to ensure a stubby, robust growth. When the pots have become filled with roots (but not pot-bound), they must be shifted into pots a size larger, an operation which must be repeated till they are potted into the size in which they are intended to bloom. Many are satisfied to bloom their Balsams in 7-in. or 8-in. pots, and if they are healthy, useful plants may be grown in that size; but to have fine specimens, 3 ft. or 4 ft. in diameter, fit for exhibition, they must be grown in 12-in. or 13-in. pots. As soon as the lower shoots can be got hold of, they must be tied or pegged down, and every fresh tier of shoots must be dealt with in the same manner. If they can be kept in pits near the glass, with plenty of air, and all the flower-buds picked off as they appear, till they are required to bloom, they will grow like Willows; and when the roots have thoroughly permeated the soil they will stand any amount of manure-water. When I have wished to have large specimens, I have given manure-water at every other watering, increasing it in strength as the plants increased in growth. Balsams treated in this way, and grown to the height of 3 ft. or 3½ ft., and from 3 ft. to 4 ft. in diameter, with side branches from top to bottom, all covered with beautiful, Carnation-like flowers.

R.

NEW HOLLYHOCKS.

In the north of England, and especially in Scotland, cultivators are remarkably assiduous in the matter of Hollyhock showing, and there is every inducement held out to raisers of this handsome flower to persevere in obtaining new varieties; whereas in London one rarely sees a Hollyhock of northern production, as there are no exhibitions at which prizes are offered for them; in fact, I believe that the only opportunity one has of seeing any of the new varieties of Hollyhock is when Mr. Chater sends a few flowers to one of the meetings of the Royal Horticultural Society during July or August. Those who wish to possess a row or two of Hollyhocks should at once obtain plants from a nursery, as they are at the present season of the year in a somewhat dormant condition, and travel better than when more advanced in growth. Strong, vigorous plants can be had in large 60-sized or small 48-sized pots; they should be housed in a cold frame and be shifted once into 32-sized pots before being planted out in May to flower during the summer. In 1876, Messrs. Downie & Laird distributed the following flowers:—Countess of Kellie, bright rosy-salmon, large, full flowers of perfect shape, forming a grand spike; Duke of Edinburgh, dark ruby-crimson, very large and full, a grand show flower; Lady Maxwell, rosy-blush suffused with carmine, a beautiful soft flower of fine form and substance; Lord Abinger, bright rosy-crimson, large and full; Mrs. Cowan, clear rosy-peach, very fine and full; and Maréchal Macmahon, bright scarlet,

large, and of extra fine form and quality. The new varieties to be distributed this spring consist of Amœna, delicate, soft, rosy-salmon, extra fine; Apollo, fine dark rosy-peach; Caloris, delicate rosy-peach, forming a fine spike; Neptune, bright ruby-crimson—whether grown for its spike or for single blooms, this makes a grand show variety; Pluto (dark rosy-purple, very fine), and Stella (glowing reddish-scarlet), form fine spikes. I should recommend, as a selection of eighteen of the finest of the northern flowers, the following, viz.:—Andrew Goodfellow, dark rosy-crimson, very fine; Andrew Jamieson, deep-shaded rose; Archbishop, light rosy-crimson, shaded with salmon, very fine; Black Douglas, intense black; Brilliant, bright rosy-scarlet; Countess of Craven, delicate rosy-peach; Cygnet, pure white; Edward Caird, bright ruby-scarlet; F. G. Doogall, glowing rosy-purple; Gem of Yellows Improved, deep yellow; James Neilson, bright rosy-salmon; James Whitton, salmon flushed with rose; John Gair, dark rosy-peach; Lady Home Campbell, pure white; Lady Eglinton, bright cherry-red; Miss Meiklam, light rose, very fine; Mrs. Graham, light rosy-lilac; and Primrose Gem, deep primrose.

D.

PLATE LXVI.

THE PITMASTON PEAR.

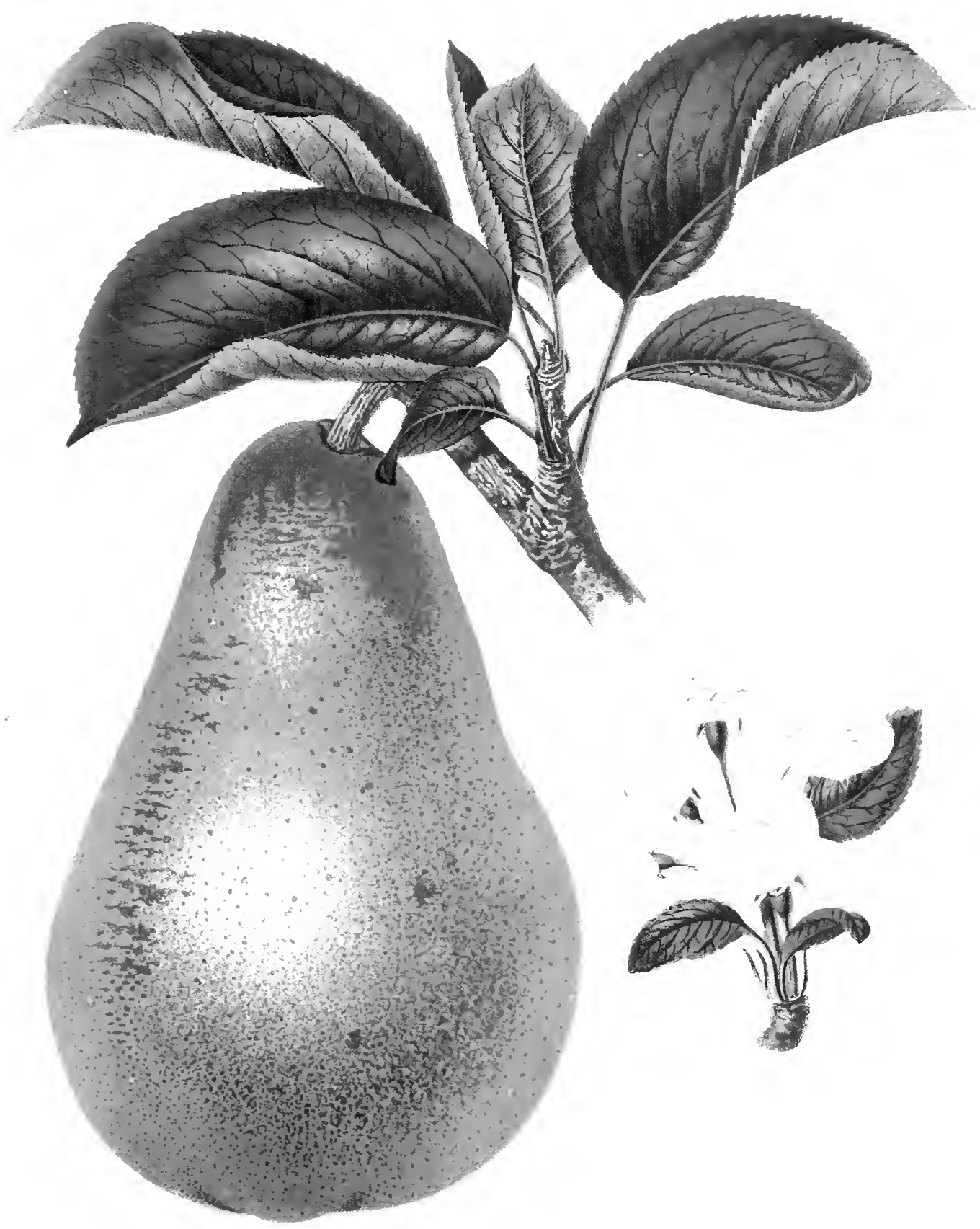
Drawn by H. HYDE.

THIS fine Pear, which originated at Pitmaston, in Worcestershire, is stated to be the result of a cross between Glou Morceau and Duchesse d'Angoulême. It is one of the largest melting Pears in cultivation, and is an excellent bearer both on walls and in open quarters. It was originally brought into notice by Mr. Turner, of Slough, about the year 1836, and was at first named Pitmaston Duchesse d'Angoulême, but it has since been found to be so wholly distinct from the Duchesse d'Angoulême and also from all other Pears, as to well deserve the name which we have given it.

Concerning this fine and large Pear, Mr. Wildsmith writes to us as follows:—Of recently-introduced Pears not one with which I am acquainted is in all points so good as this; as regards size, appearance, quality of flesh, and free bearing, it is of the first order. We have it growing on a west wall, and also as a pyramidal trained tree in an open situation, in both of which positions it does remarkably well, and except that the fruit on the wall tree is better coloured, and ripens ten days or a fortnight earlier than that on the pyramidal trained tree, it is equally good in either position. It comes into use about the beginning of October, and if gathered from the tree at different times, it may be had in use until the end of November; it therefore forms a succession to the Marie Louise, which in some respects it resembles, though it is much larger.

Mr. Wilmot, of Isleworth, who kindly furnished the fine specimen from which the annexed illustration was prepared, speaks very highly of this Pear, and is planting it largely. Most of his trees of it were grafted on old useless sorts that were cut back, but he has also some on the Quince stock, under which condition established trees yield larger fruit but do not bear so abundantly as those on the trees that were cut back. For walls, espaliers, or dwarf pyramids, this Pear is well adapted, but for standards it is not so suitable, as the fruit, which often attains a weight of 2 lb., is much too heavy for that form of tree. In whatever way it is grown, however, it has a tendency to produce fruit-buds at the extremities of the shoots; it is therefore necessary to cut back the latter to a leaf-bud after the bloom shows in order to obtain leading growths. As regards flavour Mr. Webber, of Covent Garden, asserts that, with the exception of Marie Louise, it is the best-flavoured Pear that comes into market.

Botryanthus conicus.—Eleven years ago I found in the Campagna and other parts of Italy a Muscari exactly intermediate between *M. botryoides* and *M. racemosum*, which has always puzzled me. I brought home bulbs, and they have flourished and increased in my garden. A short time since I submitted a flowering bulb to the inspection of Mr. Baker at Kew, and he pronounced it to be *Botryanthus (Muscari) conicus* of Jordan. In leaf, colour of bloom, and general habit of growth, it comes, as I said before, just midway between *M. botryoides* and *M. racemosum*. It is rather a shy bloomer, and has a habit of splitting itself up into numerous minute bulbs, which form a tangled mass.—H. HARPUR CREWE.



THE FLOWERS OF PEAR

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Vineries.—As soon as the shoots are sufficiently advanced to show which are the best placed, and which are likely to produce fruit, remove such others as are not required. As they advance in growth tie them to the wires in the places which they ought to occupy, bringing them into their exact positions by degrees, for if bent too much at once they are liable to break. Close the house early every afternoon, and syringe overhead freely with tepid water. See that inside Vine borders are sufficiently moist all the way down; through inattention to this, Vines suffer more frequently and seriously than from any other cause. The appearance of the surface of the soil through daily syringing is very deceptive, as the top will often seem wet enough when below it is much too dry. Naturally there is a disinclination to disturb the soil in which the roots ought to be thickly interspersed by using a fork or other implement to examine what is the actual condition of the bottom portion of the border, but it is very easy to ascertain the exact state as to moisture from the surface down to the drainage by the use of the little implement which I have before mentioned. It consists of a hollow tube of thin iron open at both ends, in diameter something like an ordinary gun barrel; this, thrust down as far as the drainage, of course comes out charged with the soil, when, by pushing it out with a stick something like that used in the case of a boy's popgun, the condition of the soil may be seen at a glance. By using the implement in different parts of the border, the state of the whole can be ascertained with the slightest possible injury to the roots; it will involve little cost and equally little labour, and is much better than remaining in doubt as to the condition of the soil.

Peaches under glass started some time ago will by this time be in full bloom; go over them daily, and strike the trellis to which they are trained with the hand; the vibration thus produced, if done in the middle of the day when the pollen is dry, will help to disperse it and assist the setting of the fruit. Again examine the soil to see that it is sufficiently moist right through the border as far as the roots penetrate; the Peach is a water-loving plant, and will not succeed if the soil be at all dry. Give air more or less every day, according to the state of the weather, but avoid cold draughts coming in contact with the young and tender foliage. Be careful not to allow anything like overheating, as Peaches cannot bear, especially in their early stages, being hurried; a temperature of 46° or 48° is quite enough at night, and it should not be allowed, even on sunny mornings, to rise more than 10° above that, without giving air.

Tomatoes.—Some seeds of these should now be sown in heat, as it is necessary to get the plants sufficiently early to become established before planting-out time, especially in the northern parts of the kingdom; otherwise if we happen to have a senseless, indifferent summer, the cold autumn weather sets in on them before they have a chance of bearing much. Previous to putting them out they should be moved into pots large enough to keep the plants growing, though the bearing capabilities of the Tomato are rather improved than otherwise through being somewhat confined at the roots. The seeds may be sown in an ordinary 8-in. or 10-in. flower-pot, or a seed-pan, covering them with $\frac{1}{2}$ in. of soil, or half-a-dozen seeds each may be put into 2-in. or 3-in. pots, afterwards thinned out to a couple of plants, and potted on as they need it. As soon as the seed vegetates keep the plants near the glass, or they will get drawn up so weakly as to lack their requisite vigour.

Kitchen Garden.—Some seeds of Brussels Sprouts should now be sown. It is well to make sowings of this excellent vegetable twice—at the present time and again later on—the later sowing will form sprouts late in the autumn that will stand better through the winter than those sown earlier, but the latter furnish the finest produce. The Brussels Sprout is a vegetable to which a long season of growth is indispensable for its full development, and if not sown early, no subsequent treatment will enable the plants to bear the full weight of crop of which they are capable. With many the plants are never half grown through too late sowing and growing in alternate rows with Potatoes and other vegetables, whereby there is nothing gained but a decided loss, as the Sprouts reduce the produce of the crop grown with them, and are alike injured. **Cauliflowers.**—A little Cauliflower seed should also be sown at the same time. In all cases, it is advisable to coat the seeds of all the Brassica tribe with red lead, as a preventive to the attacks of birds, for although some cultivators assert that it does not always act as a preventive, yet where the coating is efficiently done, no birds will take the seeds. A little sweet oil used in place of water before the powdered lead is dusted upon the seed will cause it to adhere better, and prevent it being removed either by wet or by coming in contact with the soil.

The seed should always be well shaken or stirred with the hand after the lead is dusted on, so as to cause it to stick closely; then spread out thinly for a day or two to dry before sowing. It is the omission of the performance of these details that is so frequently the cause of failure.

Potatoes.—More Early and Second Early Potatoes should now be planted. Nothing of late years has been more perplexing to amateurs than the selection of the best varieties of this esculent for cultivation; the immense number of new kinds that have been offered to the public with the highest possible commendations have in very many cases proved undeserving of the character with which they were heralded. With few exceptions the high-priced American kinds have turned out heavy croppers, but utterly worthless in quality, being far inferior to many of the old well-proved British sorts. For the earliest in most soils Kidneys are preferable to the Round varieties, being much better for the table in a young state. As representatives of the old well-known Ashleaf Kidney, there is nothing to surpass Lee's Hammersmith Kidney, Mona's Pride, and Myatt's Ashleaf; they are all excellent in quality, very early, and much heavier croppers than the Ashleaf, succeeding better in old gardens and soils not the best adapted for Potato culture. As an Early Round kind, Early Oxford is a good sort and a free cropper; as a Second Early, nothing yet surpasses York Regent, either for its eatable properties, weight of produce, or adaptability to any soil where Potatoes can be grown; and if the seed have been properly prepared as suggested some time ago, by being subjected to sufficient light to solidify the sprouts, and some are planted at the same time as the Early Kidneys, they will be ready for use a month later, and will be found much better in quality than any of the Early Round kinds—also as a late sort to come in for use through April and May, and up to the time that the earliest are ready I should recommend amateurs to grow Paterson's Victoria; it will at this time succeed the Regents, and from its later disposition to sprout, will be found the best at this season. Any two of the above Kidneys, with the Regents and Victorias, are ample for a supply all the year round.

Peas sown in tines or boxes should now be planted out; give them a sheltered situation in the driest part of the garden, and choose a day when the soil is tolerably dry; where it is so moist as to become compressed by treading upon, boards should be used as before recommended while putting in these and other early vegetables. The little extra labour thereby involved will be well repaid by the better condition in which the ground will be left, as when trodden solid through this and the following month, and dry weather ensues, it becomes so hard and impervious to the roots, that even the strongest-growing plants fail to succeed in it as they otherwise would. As soon as the Peas are planted draw a little soil to them, and at once stake them with small sticks, placing outside these a few branches of evergreens to protect them from cold winds. Keep a daily look-out that sparrows do not molest them; I have seen these birds attack early Peas even up to the time that the flowers were formed, nipping out the extreme points, after which the plants make but slight progress, for although they make an attempt to break out lower down, yet the produce of the early sowings that have so suffered is never more than half a crop. Except in very light soils, ground that was dug and ridged up in the autumn from the excessive wet and absence of frost to pulverize it, will this season require more stirring before cropping than the ridges being levelled in the usual way, as where the soil is heavy, it has become as close and solid as it would be in ordinary seasons if not dug at all, and it will be necessary to re-dig it, after which, so far as possible, let it remain for a short time before cropping. In all cases the fork will be a better implement than the spade for this work; leave the surface as light and open as possible.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

March 26.—Potting off spring-struck Lobelias and Petanias. Shifting young Melon plants into 6-in. pots. Cutting up a large Dendrobium noble, and making three plants of it. Sowing all annuals, also Scotch Kale, Brussels Sprouts, Savoy, Cottager's Kale, a little Veitch's Autumn Giant Cauliflower, and Egyptian Green-flesh Melon; likewise sowing Grass seeds in bare places on lawn; also more Radishes, Lettuce, Waicheren Cauliflower, and Celery in heat. Putting in Purple King Verbena cuttings and Pink pipings. Plunging Rhododendrons, Azaleas, and spare Lilacs. Putting in another forcing of Seakale, and covering up a number of crowns out-of-doors with flower-pots, over which soil is put to keep them as late as possible.

Moving *Salvias* to cold pits; also *Balm*. Tying up Lettuces to blanch. Putting supports to Strawberries that have set their fruit. Keeping *Cattleya* and *Dendrobium*-houses at 65° during the night. Looking over *Saccolabiums* for scale. Watering Peach trees in second and third houses; also Radishes in frames. Levelling Celery land for Peas. Digging in litter round Globe Artichokes. Turning manure for Potatoes. Top-dressing Japan Lillies with peat and sheep manure. Earthing up Cucumbers and Cabbage plants. Clipping Holly hedges. Raking flower borders. Hoeing among Wallflowers, Sweet Williams, and Lettuces.

March 27.—Potting Azaleas, Camellias, *Cytisus*, Palms, and *Ericas*; also potting spring-struck *Pelargoniums*, *Alyssum*, *Coleus*, seedling *Petunias*, and *Balsams*, placing the latter in Cucumber-pit. Potting *Houletia chrysantha* in Moss, crocks, and charcoal, and *Sobralia virginialis* in Moss. Sowing *Solanum capsicastrum* and French Beans in heat, and another frame of Radishes. Planting China Roses; a few Canlilowers between cases out-of-doors. Beginning to plant Strawberries, taking them up with a ball and planting them with a trowel; also putting out Cucumbers and transplanting *Balm*. Plunging young Vines in span-roofed pits. Putting Hollyhocks out-of-doors, and potting off bedding plants that are established into cold pits. Preparing border for Carnations. Top-dressing pot Vines with loam and manure, giving them a little Standen's Manure once a week, and watering them every other day. Thinning Muscat Grapes and Strawberries. Pruning Roses. Making alleys deeper between Asparagus beds with a view to afford them better drainage. Keeping East India house at 68° during the night.

March 28.—Potting Ghent Azaleas, *Dielytras*, and *Spiræas*. Shaking-out and re-potting *Cattleya speciosissima*, and potting some *Calathes* in loam, peat, sand, charcoal, and manure. Putting fresh loamy peat to the roots of *Phajus Wallichi*; supplying *Dendrobium lasioglossum* with fresh Moss, and placing pieces of wood amongst it for the young growths to root upon. Sowing Peas, Long-pod Beans, Asparagus, and Spinach. Planting Fancies, Neapolitan Violets, and Sweet Peas. Putting in cuttings of *Iresine Lindeni* and *Alternanthera*. Sprinkling horse-droppings in Gardenia-house. Digging land for permanent Seakale, and manuring ground for remainder of autumn-sown Canlilower, placing Celery plants in cold pits. Earthing hand-light Canlilowers; also autumn-sown Cabbage. Keeping first Peach-house at 60° at night and 65° by day with fire-heat, leaving night air on all the Strawberry houses and pits.

March 29.—Potting *Petunias* and *Fuchsias*; also a batch of French Beans for front of late Vineries. Shifting *Cyrtopodium punctatum* into good rough peat. Sowing Cabbage and Canlilower to be ready September 1; also more Parsley, Alexandra and Neapolitan Lettuce, Early Dutch Turnips (to be ready June 10), Early Horn Carrots (to be ready June 19), and main summer crop of Cucumbers. Planting Apricot and Pear trees on walls. Transplanting Cabbage plants in drills; also last of autumn-sown Cauliflower. Pricking out Everlastings. Preparing bed in the open ground for Radishes. Digging vacant borders. Earthing up Cucumbers. Salting Asparagus and Seakale land. Potting Ferns. Putting labels to Orchids. Hanging *Phalaenopsis* near glass. Sowing Asters, Stocks, Sweet Peas, Lupines, Sunflowers, Carnations, and Larkspurs; also full crop of Radishes and a little Pine-apple Beet. Planting out Lily of the Valley and Hollyhocks. Pricking out *Celosias* and second-sown Cauliflowers. Putting in *Scatellaria* and scented *Verbena* cuttings, and moving *Mignonette* into cold frames. Tying down Vine shoots. Trenching vacant quarters. Putting soil into pit for Vines. Turning manure for Celery. Earthing up Melons, making the surface firm. Stopping shoots of Cucumber plants that are growing freely.

March 31.—Sowing main crop of Beetroot, Salsafy, *Scorzouera*, all hardy herbs, including Borage, Angelica, and Fennel. Planting Strawberry plants, and more Canlilowers and Lettuces; likewise *Pinus anstriaca* and Yews, and Berberies; also Lily of the Valley, a pit with Vines and a bed of Carnations. Putting *Amaryllis* on Fig-house shelves; *Ageratum*, *Salvias*, *Petunias*, and *Verbenas* into cold pits, and getting Lilacs out of doors. Putting strings to rows of Strawberries on shelves to support the fruit. Staking Hollyhocks and *Mignonette*. Earthing up Broad Beans, also autumn-sown Cabbages. Mowing Grass verges, hoeing among growing crops, clearing Violet beds. Plants in flower.—*Rhododendrons*, Azaleas, *Cinerarias*, *Primulas*, *Ageratum*, *Epacris*, *Heaths*, Lilacs, *Forget-me-nots*, *Cytisus*, Wallflowers, *Tulips*, *Hyacinths*, *Amaryllis*, *Gardenias*, *Crocuses*, *Mignonette*, *Kalmia glauca*, and *K. latifolia*, *Camellias*, *Pelargoniums*, *Lily of the Valley*, *Viburnum plicatum*, *Acacias* of different sorts, *Roses*, *Dielytras*, *Dentzias*, *Correas*, *Tydeas*, *Daphne indica rubra*.

Hardy Flowers.

Auricula-growers should now give their plants all the air possible, as they are making rapid growth, and should on no account be allowed to become drawn. They promise to flower somewhat early, and exposure will tend to retard them. When a mild, soft shower occurs, the lights may be removed to give the plants the benefit of it. Top-dressing should be finished at once, as surface roots will be getting active. Wallflowers should be sown at once in order to have the plants strong for transplanting in May. I have sown Harbinger, Young's Blood Red, Golden Tom Thumb, and Belvoir Castle Dwarf Yellow, and, indeed, they are already coming through the soil. Generally Wallflowers are sown much too late, and dry weather comes in before they can be transplanted. Those who grow for the London markets always make a point of sowing early in the year, Marigold, *Mimulus*, Pansy, *Petunia*, Primrose, *Polyanthus*, Stock, Viola, and *Zinnia* seeds, should all be sown now—those that require it in heat, the others in the open ground or in boxes or pans in cold frames. The season is rapidly advancing, and there is nothing like strong plants when required to plant out. Beds and lines of *Crocuses* require to have the decaying flowers picked off to make room for successional blooms. The varieties do not always come into flower at the same time, and the purple varieties are generally the latest. *Ranunculuses* should be planted without delay. The wet winter has justified spring in preference to autumn planting, but it is now high time it was done. The soil should be rich and light, and the roots placed at least 2 in. below the surface; in the event of severe frost setting in, a few old mats spread over the surface of the beds at night will save them from injury. Worms are apt to be troublesome, working among the bulbs and throwing them out of the ground, but they can be kept in check by pouring lime-water about their runs. *Anemones* are coming through the soil, and should be helped by stirring the surface about them. What a splendid object *A. fulgens* is just now with its showy scarlet blossoms, some of them of very large size and with petals measuring nearly an inch across! I have by the side of it *A. apennina*, which is also throwing up its charming pale mauve blossoms.—D.

PROFITABLE GARDENING FOR COTTAGERS.

The Cottager who wants to grow fruit fit for preserving for sale, will do well to turn his attention to the cultivation of Raspberries and Strawberries, both of which yield heavy crops, and are sure to command a ready sale at good prices. Of the Strawberry some account was given last week (see p. 211), and as regards the Raspberry, as it naturally likes a shady situation, good crops of it may be obtained from canes grown under fruit trees, where little else would succeed. Let plantations therefore of one or two good kinds be made under fruit trees, and never dig amongst them, as it injures the roots which ramify close to the surface of the soil. Keep weeds down with the hoe. In July when the fruit is ripening, if the weather be dry give abundance of water, otherwise the fruit will be small; even liquid manure given every week at that time has a wonderful effect in increasing the crop. In winter give a coating of manure the liquid portion of which gets washed into the soil during winter, and about February prick in the soiled part with a spade or fork by merely turning it over and covering it with one or two inches of the soil. Cut down the canes to 3 ft., and stake them in the usual way. Quite as much fruit will be got from a cane 2½ ft. in length as from one 4 ft., and in the case of a low fruiting cane, the fruit has a better chance of escaping without injury from birds. The suckers which grow rapidly in summer, spread out their foliage, and cover the fruit with 3 ft. canes, and the finest fruit is always found under dense foliage. In order to give an ideal of the value of a Raspberry plantation under fruit trees, I may state that one 20 yards long and 4 yards broad in a north aspect has been known to yield from 50 to 60 quarts of fruit during the summer, which at 6d. per quart, produce from 25s. to 30s. The fruit should be gathered three or perhaps four times a week. The Raspberry crop never fails like that of other fruit, but the plants must be freely watered, as water is always beneficial, especially during a dry season, when the fruit is ripening. H. T.

Preserved Peas.—The question of the legitimacy of the coloration of Peas by copper has been discussed at the Académie des Sciences of Paris on one or two recent occasions, and the result arrived at was similar to that respecting the adulteration of wine by fuchsine. It was strongly urged by M. Pasteur and others that if not a technical adulteration which could be shown to be injurious, it was at any rate a dishonest admixture, and that the preserved Peas which are coloured by copper ought to be distinctly designated as such; so that the consumer might at any rate choose for himself whether he would or would not consume habitually the small portions of copper contained in them.—*Lancet*.

THE PLANT-LORE OF SHAKESPEARE.

ALL the commentators on Shakespeare are agreed upon one point, that he was the most wonderful many-sided writer that the world has yet seen. Every art and science are more or less noticed by him, so far as they were known in his day; every business and profession are more or less accurately described; and so it has come to pass that, though the circumstances of his life are pretty well known, yet the students of every art and science, the members of every business and profession, have delighted to claim him as their fellow-labourer. Books have been written at various times by various writers, which have proved (to the complete satisfaction of the writers) that he was a soldier, a sailor, a lawyer, an astronomer, a physician, a preacher, an actor, a courtier, and I know not what else besides.

I also propose to claim him as a fellow-labourer. A lover of flowers and gardening myself, I claim Shakespeare as equally a lover of flowers and gardening; and this I propose to prove by showing how, in all his writings, he exhibits his strong love for flowers, and a very fair, though not perhaps a very deep knowledge of plants; but I do not intend to go further. That he was a lover of plants I shall have no difficulty in showing; but I do not, therefore, believe that he was ever a professed gardener, and I am quite sure he can in no sense be claimed as a brother-botanist, in the scientific sense of the term. His knowledge of plants was simply the knowledge that every man may have who goes through the world with his eyes open to the many beauties of Nature that surround him, and who does not content himself with simply looking, and then passing on, but tries to find out something of the inner meaning of the beauties he sees, and to carry away with him any of the lessons which they were doubtless meant to teach. But Shakespeare was able to go further than this. He had the great gift of being able to describe what he saw in a way that few others have ever arrived at; he could communicate to others the pleasure that he felt himself, not by long descriptions, but by a few simple words, a few natural touches, and a few well-chosen epithets, which bring the plants and flowers before us in the freshest, and often in a most touching way.

For this reason the study of the plant-lore of Shakespeare is a very pleasant study, but there are other things which add to this pleasure. One especial pleasure arises from the thoroughly English character of his descriptions. It has often been observed that wherever the scenes of his plays are laid, and whatever foreign characters he introduces, yet they really are all Englishmen of the time of Elizabeth, and the scenes are all drawn from the England of his day. This is certainly true of the plants and flowers we meet with in the plays; they are thoroughly English plants that (with very few exceptions) he saw in the hedgerows and woods of Warwickshire, or in his own or his friends' gardens. The descriptions are thus thoroughly fresh and real; they tell of the country and of the outdoor life he loved, and they never smell of the study lamp. In this respect he differs largely from Milton, whose descriptions (with very few exceptions) recall the classic and Italian writers. He differs, too, from his contemporary Spenser, who has certainly some very sweet descriptions of flowers, which show that he knew and loved them, but has chiefly allusions to classical flowers, which he uses in such a way as to show that he often did not fully know what they were, but used them because it was the right thing for a classical poet so to do. Shakespeare never names a flower or plant unnecessarily; they all come before us, when they do come, in the most natural way, as if the particular flower named was the only one that could be named on that occasion. We have nothing in his writings, for instance, like the long list of trees described (and in the most interesting way) in the first Canto of the First Book of the "Faerie Queene," and indeed he is curiously distinct from all his contemporaries. Chaucer, before him, spoke much of flowers and plants, and drew them as from the life. In the century after him Herrick may be named as another who sung of flowers as he saw them, but the real contemporaries of Shakespeare are, for the most part, very silent on the subject. One instance will suffice. Sir Thomas Wyatt's poems are all professedly about the country—they abound in woods and vales, shepherds and swains—yet in all his poems there is scarcely a single allusion to a flower in a really natural way.

And because Shakespeare only introduces flowers in their right place, and in the most purely natural way, there is one necessary result. I shall show that the number of flowers he introduces is large, but the number he omits, and which he must have known, is also very large, and well worth noting. He has no notice, under any name, of such common flowers as the Snowdrop, the Anemone, the Forget-me-Not, the Fox-glove, the Lily of the Valley, and many others which he must have known, but which he has not named; because when he names a plant or flower, he does so not to show his own knowledge, but because the particular flower or plant is wanted in the particular place in which he uses it.

Another point of interest in the plant-lore of Shakespeare is the wide range of his observation. He gathers flowers for us from all sorts of places—from the "turf mountains" and the "flat meads;" from the "bosky acres" and the "unshrubbed down;" from "Rose-banks and hedges unpleached." But he is equally at home in the gardens of the country gentlemen with their "pleached bowers and leafy orchards." Nor is he a stranger to gardens of a much higher pretension, for he will pick us famous Strawberries from the garden of my lord of Ely in Holborn; he will pick us White and Red Roses from the garden of the Temple; and he will pick us "Apricocks" from the royal garden of Richard the Second's sad queen. I propose to follow Shakespeare into these many pleasant spots, and to pick each flower and note each plant which he has thought worthy of notice. I do not propose to make a selection of his plants, for that would not give a proper idea of the extent of his knowledge, but to note every tree, and plant, and flower that he has noted; and as I pick each flower, I shall let Shakespeare first tell us all he has to say about it; in other words, I shall quote every passage in which he names the plant or flower; for here, again, it would not do to make a selection from the passages, my object not being to give "floral extracts," but to let him say all he can in his own choice words. There is not much difficulty in this, but there is difficulty in determining how much or how little I can quote. On the one hand, it often seems cruel to cut short a noble passage in the midst of which some favourite flower is placed; but, on the other hand, to quote at too great a length would extend these papers beyond the limits that the editor of THE GARDEN could spare. The rule, therefore, must be to confine the quotations within as small a space as possible, only taking care that the space is not so small as entirely to spoil the beauty of the description. Then, having listened to all that Shakespeare has to say on each flower, I shall follow with illustrations (few and short) from contemporary writers; then with any observations that may present themselves in the identification of Shakespeare's plant with their modern representatives, finishing each with anything in the history or modern uses and cultivation of the plant that I think will interest readers. For the identification of the plants, we have an excellent and trustworthy guide in John Gerard; he was almost an exact cotemporary of Shakespeare. Gerard's life ranged from 1545 to 1612, and Shakespeare's from 1564 to 1616. Whether they were acquainted or not we do not know, but it is certainly not improbable that they were; I should think it almost certain that they must have known each other's published works.

Of other works illustrating the plant-lore of Shakespeare, I need only mention "Shakespeare's Garden," by Sidney Beisly, 1864. I have to thank him for information on one or two points, but on the whole it is not a satisfactory account of the plants of Shakespeare, and I have not found it of much use.

My subject naturally divides itself into two parts—First, the actual plants and flowers named by Shakespeare; second, his knowledge of gardens and gardening. I now go at once to the first division, naming each plant in its alphabetical order:—

Aconitum.

K. Henry. The united vessel of their blood
Mingled with reason of suggestion
(As force perforce, the age will pour it in),
Shall never leak, though it do work as strong
As Aconitum or rash gunpowder.

2nd Henry IV., act. iv., sc. 4.

The plant here named as being as powerful in its action as gunpowder, is the *Aconitum Napellus* (the Wolf's-bane or Monk's-hood). It is a member of a large family, all of which are more or less poisonous, and the common Monk's-hood as much so as any. Two species are found in America, but, for the most part, the family is confined to the northern portion of the Eastern Hemisphere, ranging from the Himalaya through Europe to Great Britain. It is now found wild in a few parts of England, but it is certainly not indigenous; it was, however, very early introduced into England, being found in all the English vocabularies of plants from the tenth century downwards.

Its names are all interesting. Its Anglo-Saxon name was *thung*, which primarily meant anything very poisonous; it was then called *Aconite*, as the English form of its Greek and Latin name, but this name is now seldom used, being, by a curious perversion, solely given to the pretty little early-flowering Winter *Aconite* (*Eranthis hyemalis*), which is not a true *Aconite*, though closely allied; it then got the name of Wolf's-bane, as the direct translation of the Greek *lycoctonum*, a name which it had from the idea that arrows tipped with the juice, or baits anointed with it, would kill wolves and other vermin; and, lastly, it got the expressive names of Monk's-hood and the Helmet-flower, from the curious shape of the upper sepal overtopping the rest of the flower.

As to its poisonous qualities, all authors agree that every species is very poisonous, the *A. ferox* of the Himalaya being probably the most so. Every part of the plant, from the root to the pollen dust, seems to be equally powerful, and it has the special bad quality of being, to inexperienced eyes, so like harmless plants, that the poison has been often taken by mistake with deadly results. This charge against the plant is of long standing, dating certainly from the time of Virgil—*misericors fallunt aconita lygentes*—and, no doubt, from much before his time.

Yet, in spite of its poisonous qualities, the plant has always held, and deservedly, a place among the ornamental plants of our gardens; its stately habit and its handsome leaves and flowers make it a favourite. Nearly all the species are worth growing, the best, perhaps, being *A. Napellus*, with its white variety, *A. paniculatum*, *A. japonicum*, and *A. autumnale*. All the species grow well in shade and under trees. In Shakespeare's time Gerarde grew in his London garden four species—*A. lycoctonum*, *A. variegatum*, *A. Napellus*, and *A. pyrenaicum*.

Almond.

Thecites. The parrot will not do more for an Almond.

Troilus and Cressida, act v., sc. 2.

"An Almond for a parrot" seems to have been a proverb for the greatest temptation that could be put before a man. The Almond tree is a native of Asia and North Africa, but it was very early introduced into England, probably by the Romans. It occurs in the Anglo-Saxon lists of plants, and in the "Durham Glossary" (11th century) it has the name of the "Easterne nutte-beam." The tree was always a favourite both for the beauty of its flowers, which come very early in the year, and for its Biblical associations, so that in Shakespeare's time the trees were "in our London gardens and orchards in great plenty" (Gerarde). The name Almond comes to us through the French *amande* (Provençal, *amondala*), from the Greek and Latin, *amygdalus*. What this word meant is not very clear, but the native Hebrew name of the plant (*shaked*) is most expressive. The word signifies "awakening," and so is a most fitting name for a tree whose beautiful flowers, appearing in Palestine in January, show the wakening up of Creation. The fruit also has always been a special favourite, and though it is strongly imbued with prussic acid, it is considered a wholesome fruit. By the old writers many wonderful virtues were attributed to the fruit, but I am afraid it was chiefly valued for its supposed virtue, that "five or six being taken fasting do keepe a man from being drunke" (Gerarde). This popular error is not yet extinct.

As an ornamental tree the Almond should be in every shrubbery, and, as in Gerarde's time, it may still be planted in town gardens with advantage. There are several varieties of the common Almond, differing slightly in the colour and size of the

flowers; and there is one little shrub (*Amygdalus nana*) of the family that is very pretty in the front row of a shrubbery. All the species are deciduous.

Apple.

- (1) *Sebastian*. I think he will carry the island home and give it his son for an Apple.
Tempest, act ii., sc. 1.
- (2) *Malvolio*. Not yet old enough for a man, nor young enough for a boy, as a Codling when 'tis almost an Apple.
Twelfth Night, act i., sc. 5.
- (3) *Antonio*. An Apple cleft in two is not more twin Than these two creatures.
Twelfth Night, act v., sc. 1.
- (4) *Song of Winter*.
When roasted Crabs hiss in the bowl,
Then nightly sings the staring owl,
Love's Labour Lost, act v., sc. 2.
- (5) *Puck*. And sometimes lurk I in a gossip's bowl In very likeness of a roasted Crab; And when she drinks, against her lips I bob And on her withered dewlap pour the ale.
Midsommer Night's Dream, act ii., sc. 1.
- (6) *Antonio*. An evil soul producing holy witness Is like a villain with a smiling cheek,
A goodly Apple rotten at the heart.
Merchant of Venice, act i., sc. 3.
- (7) *Tranio*. He in countenance somewhat doth resemble you,
Biondello. As much as an Apple doth an oyster.
Taming of Shrew, act iv., sc. 1.
- (8) *Petruchio*.
What's this? a sleeve? 'tis like a demi-cannon.
What! up and down, carved like an Apple-tart?
Taming of Shrew, act iv., sc. 3.
- (9) *Fool*. Thy other daughter will use thee kindly; for though she is as like thee as a Crab to an Apple, yet I can tell what I can tell.
Lear. Why, what canst thou tell, my boy?
Fool. She will taste as like thee as a Crab to a Crab.
Lear, act i., sc. 5.
- (10) *Falstaff*. My skin hangs about me like an old lady's loose gown; I am withered like an old Apple-john.
1st Henry IV., act iii., sc. 3.
- (11) *1st Drawer*. What the devil hast thou brought there? Apple-johns? Thou knowest Sir John cannot endure an Apple-john.
2nd Drawer. Mass! thou sayest true; the prince once set a dish of Apple-johns before him, and told him there were five more Sir Johns; and putting off his hat, said, I will now take my leave of these six dry, round, old, withered knights.
2nd Henry IV., act ii., sc. 4.
- (11*) *Orleans*. English mastiffs . . . run winking into the mouth of a Russian bear, and have their heads crunched like rotten Apples.
Henry V., act iii., sc. 7.
- (12) *Shallow*. Nay, you shall see mine orchard, where in an arbour we will eat a last year's Pippin of my own grafting, with a dish of Carraways, and so forth.
Dary. There's a dish of Leather-coats for you.
2nd Henry IV., act v., sc. 3.
- (13) *Evans*. I pray you begone; I will make an end of my dinner. There's Pippins and cheese to come.
Merry Wives of Windsor, act i., sc. 2.
- (14) *Caliban*. I prythee let me bring thee where Crabs grow.
Tempest, act ii. sc. 2.
- (15) *Holofernes*. The deer was as you know in *sanguis*—blood; ripe as a Pomewater, who now hangeth like a jewel in ear of *cælo*—the sky, the welkin, the heaven; and anon falleth like a Crab on the face of *terra*—the soil, the land, the earth.
Love's Labour Lost, act iv., sc. 2.
- (16) *Petruchio*. Nay, come, Kate, come, you must not look so sour.
Katherine. It is my fashion when I see a Crab.
Petruchio. Why, here's no Crab, and, therefore, look not sour.
Taming of Shrew, act ii., sc. 1.
- (17) *Menenius*. We have some old Crab trees here at home that will not Be grafted to your relish.
Coriolanus, act ii., sc. 1.
- (18) *Suffolk*.
Noble stock
Was graft with Crab tree slip.
2nd Henry VI., act iii., sc. 2.
- (19) *Porter*. Fetch me a dozen Crab-tree staves, and strong ones.
Henry VIII., act v., sc. 3.
- (20) *Hortensio*. Faith, as you say, there's small choice in rotten Apples.
Taming of Shrew, act i., sc. 1.
- (20*)
How like Eve's Apple doth thy beauty grow,
If thy sweet virtue answer not thy show.

Here Shakespeare names the Apple, the Crab, the Pippin, the Pomewater, the Apple-john, the Codling, the Carraway, and the Leathercoat. Of the Apple generally I need say nothing, except to notice that the name was not originally confined to the fruit now so called, but was a generic name applied to any fruit, as we still speak of the Love-apple, the Pine-apple, &c. The Anglo-Saxon name for the Blackberry was the Bramble-apple; and Sir John Mandeville, in describing the Cedars of Lebanon, says:—"And upon the hills grown Trees of Cedre, that beu fulle hye, and they beren longe Apples, and als grete as a man's heved." (Cap. IX.). In the English Bible it is the same. The Apple is mentioned in a few places,

but it is almost certain that it never means the *Pyrus malus*, but is either the Orange, Citron, or Quince, or is a general name for a tree fruit. So that when Shakespeare and the other old writers speak of Eve's Apple, they do not necessarily assert that the fruit of the temptation was our Apple, but simply that it was some fruit that grew in Eden. The Apple (*pomatium*) has left its mark in the language in the word "pomatum," which, originally an ointment made of Apples, is now an ointment in which Apples have no part.

The Crab was held in far more esteem in the sixteenth century than it is with us. The roasted fruit served with hot ale (4 and 5) was a favourite Christmas dish, and even without ale the roasted Crab was a favourite, and this not for want of better fruit, for Gerard tells us that in his time "the stocke or kindred of Apples was infinite," but because they were considered pleasant food. Another curious use of Crabs is told in the description of Crab-wake, or "Crabbing the Parson," at Halesowen, Salop, on S. Kenelm's Day (July 17), in Brand's "Popular Antiquities" (vol. i., p. 342, Bohn's edition). Nor may we now despise

the Crab tree, though we do not eat its fruit? Among our native trees there is none more beautiful than the Crab tree, both in flower and in fruit. An old Crab tree in full flower is a sight that will delight any artist, nor is it altogether useless; its wood is very hard and very lasting, and from its fruit verjuice is made, not however much in England, as I believe nearly all the verjuice now used is made in France.

The Pippin, from being originally a general name for any Apple raised from pips and not from grafts, is now, and probably was in Shakespeare's time, confined to the bright-coloured long-keeping Apples (Justice Shallow's was "last year's Pippin,") of which the Golden Pippin ("the Pippin burnished o'er

with gold"—Phillips) is the type. It is not easy to identify the Pomewater (No. 15). It was highly esteemed both by Shakespeare ("it hangeth like a jewel in the ear of *Calo*,") and many other writers. In Gerard's figure it looks like a Codling, and its Latin name is *Malus carbonaria*, which probably refers to its good qualities as a roasting Apple. The name Pomewater (or Water Apple) makes us expect a juicy but not a rich Apple, and with this agrees Parkinson's description:—"The Pomewater is an excellent, good, and great whitish Apple, full of sap or moisture, somewhat pleasant sharp, but a little bitter withall; it will not last long, the winter frosts soon causing it to rot and perish." It must have been very like the modern

Lord Suffield Apple.

We have no such difficulty with the "dish of Apple-johns" (10 and 11). "The Deusan (*deusans*) or Apple-john," says Parkinson, "is a delicate fine fruit, well relished when it beginneth to be fit to be eaten, and endureth good longer than any other Apple." With this description there is no difficulty in identifying the Apple-john with an Apple that goes under many names, and is figured by Maund as the Easter Pippin. When first picked it is a deep green and very hard. In this state it remains all the winter, and in April or May it becomes yellow and highly perfumed, and remains good either for cooking or dessert for many months.

The Codling (2) is not the Apple now so called, but is the general name of a young unripe Apple.

The "dish of Carraways" (12) is by many supposed to be a dish of Carraway seeds, which I should think most improbable, or of cakes made of Carraways, which is possible, but looking at the context I have little doubt that it refers to the Carraway or Carraway-russet Apple, an excellent little Apple, still so called, that seems to be a variety of the Non-pareil.

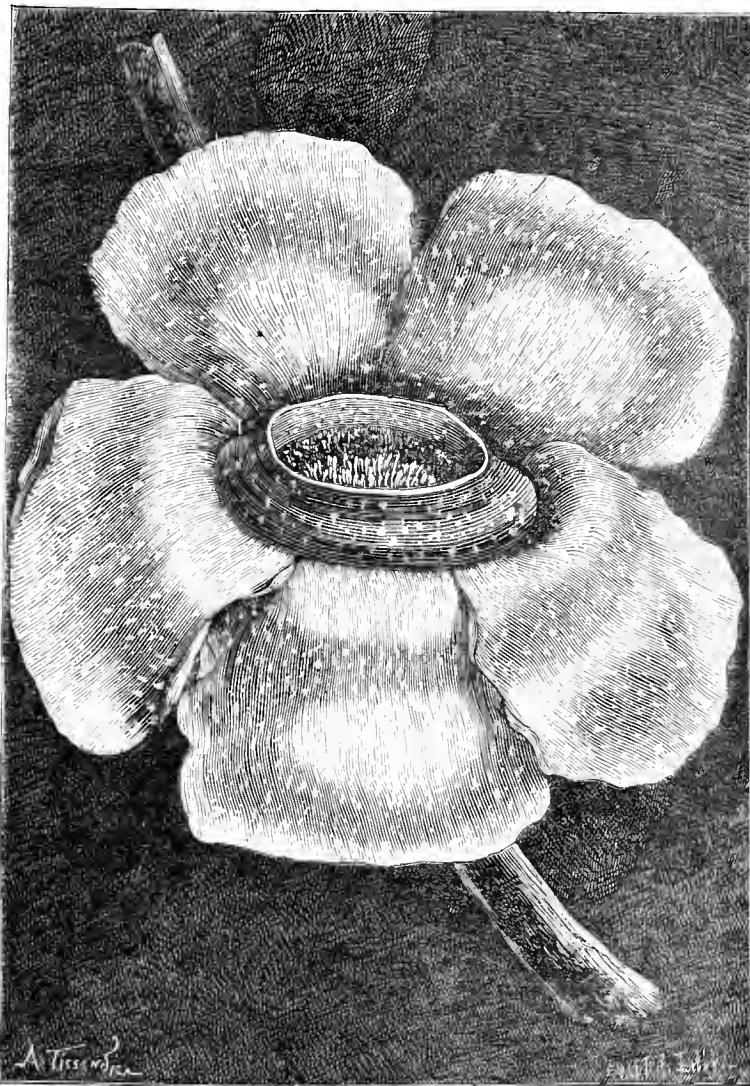
The "Leathercoats" H. N. E.

(12) are the Brown Russets.

TROPICAL PARASITES.

(RAFFLESIA ARNOLDI).

THE RAFFLESIAS, of which three or four kinds are found in Java and Sumatra, are singular parasitic plants, we were going to say, but in reality they have neither stems nor leaves, the only evidence of the plant on its first appearance being a rounded bud, the size of a marble, protruding through the bark of a trailing *Cissus*, and which, after gradually enlarging for a



Rafflesia Arnoldi.

month or two, attains the size of a medium-sized Cabbage, and finally expands its five thick, warty, wax-like petals, forming a flower from a foot to a yard in diameter. These plants, so different in structure, appearance, and habit of growth from any other parasites, were first made known in 1818, when Sir Stamford and Lady Raffles, Dr. Arnold, and others discovered *R. Arnoldi* during one of their tours in the interior of Sumatra, and on descriptions and drawings being sent to this country, Robert Brown named the plant in honour of its discoverers. Several other species have since been found, but *R. Arnoldi* still remains the largest and most singular. In colour, the flowers are yellow, flushed here and there with pink, the petals being marbled with lurid purple, and the whole flower exhales a foetid odour by which insects are attracted to it, as in the case of *Stapelias*. The flowers remain open three or four days only, and then gradually collapse and decay. Another species—*R. Rochussenii*—was discovered in Java in 1850 by MM. Teysmann and Binnendijk, and this plant was, a year or two later, cultivated—I believe successfully—in the botanic garden at Leyden. B.

THE FRUIT GARDEN.

INSIDE *v.* OUTSIDE VINE BORDERS.

An impression prevails amongst some cultivators that Vines, the roots of which are altogether confined to inside borders, are shorter-lived, or at least sooner exhausted than those, the roots of which are allowed to ramble outside at will; but my own opinion is that the matter is entirely a question of management. If well supplied with food and moisture, inside borders for early Grapes are certainly to be preferred; they may be composed of richer materials—especially in the way of top-dressings—than would be desirable or even safe with borders exposed. I have always adopted this plan in preference to using strong liquids too freely, as there is a possibility of the latter, if given in excess, affecting injuriously the colouring of Black Grapes. Any one starting with the idea that inside borders require no more care than outside ones, or, who from the force of habit or the influence of the rule of thumb, treat them in the same way as they are often managed when in connection with houses where the Vines have both inside and outside root-space would, I fear, before long see reason to regret ever having come to such an erroneous conclusion; but the result would only show the necessity there is for forming a correct estimate of the different conditions under which the two are placed. It is nearly twenty years since I planted a number of Black Hamburgs and Muscat of Alexandria Vines in a brick-built pit inside a small forcing-house: the Hamburgs occupied the cool end of the house, and the Muscats the warmest position, and were at first planted one Vine to each rafter. After the lapse of two or three years, I encouraged the two strongest (a Hamburg and a Muscat) gradually to extend, removing the supernumeraries, as the two permanent Vines required the space, until in a short time they filled the house. As this extension was progressing, I could see a marked development in their strength, with a corresponding improvement in the quality of the fruit. The border or pit was altogether above the ground-level, and not more than 6 ft. wide. Stones to the depth of about 6 in. were placed in the bottom, and the roots could not by any possibility get out, being bricked in on all sides. The soil was not quite of the description that I should have chosen under other circumstances, but as it was to carry out an idea of my own, I did not feel justified in using the best turfy loam (which, by-the-by, was somewhat difficult to obtain); therefore the border was made up of a variety of substances, including the clearings from the rubbish-heap mixed with wood-ashes and burnt earth, and there was, I remember, rather more than the average number of stones, pieces of brick, oyster-shells, and materials of that character; this mixture, however, helped to keep the rich border open and porous, and perhaps was of no slight assistance in keeping the Vines in health under the rich top-dressings and the delugings with water that the border frequently had. There was no bottom-heat, but, as already mentioned, the border was above the ground-level, and there was a stack of hot-water

pipes close to the wall of the pit which would furnish a small degree of warmth, and the border was always watered with tepid water, so that its temperature would not be much below the mean average of the atmosphere. During the time of my stay there, the Vines continued to bear good crops of well-finished fruit; the Muscats especially were better than we had elsewhere. Eight years ago when I came here (Ramsey Abbey) a demand having arisen for early Grapes, and having fresh in my mind my previous experience, I adopted the same system of planting out Vines in a narrow brick pit, inside a lean-to house, instead of growing them in pots, which would have been the only other alternative. The root-space is very small, not more than 4 ft. wide, in fact, it might almost be called an amplification of the pot system. I may say I am rather partial to growing Grapes in pots, and generally grow a few fruiting canes most years, but for quality and quantity, with economy of labour, the potted Grapes with me do not equal those planted in the brick pit. There are two pipes under the bed for bottom-heat; this was an arrangement that was made for another purpose, otherwise in so confined a space I am not quite convinced of their necessity; the pipes, however, are never allowed to get more than comfortably warm, but of course even this must raise considerably the temperature of the bottom of the border. The main objection to hot-water-pipes under a Vine border is they have a dangerous tendency to dry the border too much, and the evil may exist for some time without its being suspected, and unless some provision is made for moistening the bottom of the border other than the customary one of pouring water on the top, the chances are some day a sudden difficulty may arise with the crop. I believe the best plan (and the one I adopt) is to fix earthenware pipes at intervals with one end resting on the rubble on the bottom of the border, and the other projecting an inch or two above the soil at top, and once a week or so to pour water liberally down, varying it occasionally with liquid manure. Bottom-heat from hot-water pipes skilfully managed will do no injury, but the good they do appears to me somewhat doubtful, *i.e.* in connection with brick pits raised above the ground-level in the atmosphere of the house, which is the only way I have yet had an opportunity of trying it; at any rate, I have had under similar circumstances as good Grapes without as with their use.

In the management of the Vines planted out in the way described, I consider there is a great advantage in training in a young rod or two wherever there is sufficient space without unduly crowding the foliage, and, after the fruit is all cut, remove a similar number of old ones, so that there are never any bearing rods more than three years or so old. I attach some importance to this as a means of keeping up and perpetuating vigour, and some kinds, such as Buckland's Sweet-water, bear best on young rods. With borders so limited in size it is a very great advantage (I had almost said a necessity) to remove as much of the surface-soil as possible; of course, as the border is full of roots, some disturbance of them must take place, but the work is done as carefully as possible, and the Vines take so kindly to the rich top-dressing, and derive so much benefit from it that I have never any hesitation or feel any compunction in removing as much of the old soil as possible, and as the two Vines that now fill the space are located one at each end, with the branches trained horizontally, I occasionally (perhaps once in three years) remove the border for a space of several feet in the centre, and fill in with fresh turfy loam and manure. The conclusion I have drawn from my grubbing amongst Vine roots is, that if the work be carefully and quickly done, they do not seem to resent this interference; on the contrary, when growing in a limited root-space, much good will result therefrom. Taking a general view of this question, if I had an early Vinery to plant now, I should certainly prefer planting inside the house in a border surrounded by brickwork; and if I had the option of a couple of hot-water pipes I should certainly accept them, feeling convinced that I could prevent them doing harm, although, as I have already remarked, the experience I have had with them so placed has not strongly impressed me with their being a necessity; but the truth is, I have faith in the utility of bottom-heat when rightly applied, rigidly watched, and proper precautions taken against over-dryness at the bottom.

A lack of moisture is the main cause of inside borders failing to attract and keep possession of the roots, and when once a border in such a position becomes thoroughly dry, it is a very difficult matter to moisten it. I believe, also, with small early houses and circumscribed borders, that the fewer Vines there are in proportion to the size of the house, and the more individual freedom of growth is encouraged, the better both for their productiveness and long living.

Since writing the above THE GARDEN has come to hand, and I have read Mr. Grieve's excellent remarks on the same subject, and with which in the main I entirely agree.

E. HOBDAV.

MELON CULTURE FOR AMATEURS.

THE inexperienced generally shun Melon culture as being a rather uncertain speculation, though they may be very successful perhaps in Grape-growing or Cucumber culture, both of which require just as much skill and attention, if not more than the Melon. The Melon is a most desirable summer fruit, and if obtainable would, we have no doubt, be more appreciated and generally used than even the Pine-apple. I shall, therefore, endeavour to explain, for the benefit of those who have not the usual appliances—in the shape of pits efficiently heated—at their command, how they may grow Melons by similar means. In the first place, it is necessary to state that, except under peculiarly favourable circumstances indeed, it is hopeless to think of growing the Melon in the open air in this country with any certainty of success, even with the assistance of hand-lights or cloches, in the way these are employed for Ridge Cucumbers and similar plants. Hardy varieties, so called, are recommended, which are said to succeed under such conditions; but we do not believe in them any more than we do in the culture of the Pine-apple out-of-doors. The Melon, in a usual way, requires a considerably higher temperature than we often experience in this country, for a period of four months at the least from the time the seed is sown, to produce ripe fruit, some idea may therefore be formed how little likely success is to attend any attempt at open-air culture; it may, nevertheless, be grown to perfection between the beginning of April and the end of September in a common glass frame, assisted by a moderate-sized hotbed, composed of materials which are within the reach of those who are possessed of either horses or cows.

The Hotbed and the Frame.

The frame should be made of good deal or planks, and should be 12 ft. long by 6 ft. wide, 2 ft. deep at the back, and 18 in. deep in front, and have three sashes. This is a convenient size, and it is better to have such portable structures, and more of them, than one or two very unwieldy ones. If the frame be made at home, the sides and ends should be made in separate pieces, with bolts and holes for securing them together when wanted; and at other times the frame can be taken to pieces and stored away in small compass. Some people find it considerably cheaper and more convenient to buy such things than to make them themselves. The hotbed is the great difficulty with most amateurs—not the finding of the material so much as the making and management of the bed, which however is more an imaginary than a real difficulty. The secret of the matter consists in making the bed right at first, and not putting it together a few days before the Melons have to be planted, as under such circumstances success cannot be expected. For a frame 12 ft. by 6 ft., a bed 14 ft. by 8 ft., and at least 2½ ft. deep after being well trodden, will be required. This area will allow a foot margin all round the frame, and the depth will be sufficient to sustain the required bottom-heat throughout the summer. The site for the bed should be sheltered, and it should have an open exposure to the south, in order that the frame may receive the sun's rays as long as possible every day; and it should not therefore be placed where it will be shaded by trees or walls from the morning and afternoon sun. This is an important point and one frequently overlooked. It is not by any means enough that the frame gets the sun about noon only; it must have it all day. If it be necessary, for the sake of appearances, to place such structures out of sight among the bushes or amongst

trees, we should say then, do not attempt Melon culture at all, for success is, under such conditions, extremely doubtful. The making of the hotbed is a very trifling matter, for a man may do all the work about it in a few hours; but the expense of the materials is a consideration to some people, who forget that the hotbed comes in the following year as a fund of excellent manure, suitable for almost any gardening purpose, and it may also be used instead of fresh leaves for tempering the rank litter for the next hotbed. We are in the habit of using old hotbeds for this purpose annually; Melon beds may, therefore, be said to cost only the trouble of making. For a kitchen garden several acres in extent, and for many flower beds and borders, we are allowed only the stable litter and manure; but nearly the whole of this has to do duty first as Mushroom beds and hotbeds for a variety of purposes, before it can be used on the garden ground. It will be necessary to begin making the hotbed three or four weeks before it is wanted. About three good cart-loads of litter will be required for a bed of the dimensions given. If it be from the stable, it must be taken as it comes, long and short together; but if from the farmstead heap, it is better to shake the rank cow manure out of it, and take the moist straw only, if horse-droppings cannot be had with it. These are always to be used with the litter if procurable, particularly if dead vegetable refuse has to be mixed with the litter instead of fresh leaves. The litter and leaves should be deposited for preparation near where the bed is to be erected; and if leaves cannot be procured to mix with the litter—and equal quantities of each will be required—then some substitute must be found. Old decayed hotbed material is the next best to leaves, and, failing either, any available decayed vegetable refuse may be employed, such as old Pea or Bean haulm, Potato tops, and the refuse vegetables from the kitchen garden generally, which might be saved for the purpose. Sawdust may also be employed—in fact, anything that is likely to ferment moderately. The stable litter is the principal thing, but the hotbed cannot be made of it alone, for it would be too hot, and the heat would soon subside. What is wanted is material to moderate the fermentation. If stable litter be plentiful and leaves scarce, more of the former may be used, and to prevent violent fermentation, soil, turf, and such like may be mixed with it at the rate of about one-fourth. Leaves themselves make an excellent summer hotbed for Melons if the bed be made 3 ft. or 4 ft. deep, but they are generally more difficult to procure than the litter. Leaves alone seldom heat to a higher temperature than 80° or 90°, and a good body of them is required to sustain that figure for a long period; but stable litter mixed with droppings will heat up to 150° or more. Now, for Melons the hotbed temperature will require to be about 85°, and the cultivator will therefore be able to judge what proportions of the different materials, according to their kind, he will require for the purpose; of course, if the litter be much decayed, it will not ferment so much, and the removal or addition of the droppings will make a great difference. One thing we must caution the reader against, and that is the use of newly-cut, short Grass; it ferments very violently and quickly, and subsides as fast, and is very unsafe for such purposes, though we are aware it is commonly used by amateurs, and often with disastrous results. Whatever materials are employed, they must be thoroughly mixed together twice or three times at intervals of ten days or a week, and well watered, if dry, at the same time, but it must not be trodden at this stage, and if the heat be pretty strong in the heap just before it is made into a bed, it is a good sign. The bed should not be constructed in a slovenly matter, but built as methodically and squarely as a hay-stack, or even more carefully, and it will be sure to stand well and not fall to pieces; it must also be trodden with the feet as firmly as possible as it is built, and it should be begun and finished in the same day. A thermometer should be inserted in the bed after it is finished, and as soon as the temperature has subsided to 100° or thereabouts, and is observed to be on the decline, the frame may be set on and filled with the soil.

Soil.

The materials suitable for a Melon bed are very simple. If we had our choice we should perhaps prefer good, half-rotted, turfy loam, for a Melon-pit, and for the same reason

that we should prefer such a soil for Potatoes; but it is by no means indispensable for either. The Melon will grow in any good garden soil that is not too heavy nor yet too light. As a rule, soil in which ordinary vegetables grow will well suit it, and the more loam there is in it the better; but it must not be too heavy. We have often run out of turfy loam procured from the pastures for our Melon beds, as they take much soil; but we never ran short of a soil so long as we could sift what we wanted from the kitchen garden quarters, taking the top spit, and getting it on a dry day if possible, and we could not say that our crops were ever really either better or worse in consequence. We would recommend the amateur, therefore, to use turfy loam alone, after it has been laid up in heaps till the fibre is dead, if he can get it; and if not, to use the soil from his Cabbage or Potato quarter. Our Melon-beds are heated by hot-water pipes underneath, and have not to be removed periodically as in the case of beds; consequently we just dig the beds over, add a good dressing of fresh soil, and plant at once without the slightest misgivings as to the success of the crops.

Sowing and Planting.

The middle of April or beginning of May is soon enough to plant out Melons in a frame under the circumstances here contemplated. To plant them sooner would entail extra appliances in the shape of linings of litter applied frequently to keep the heat of the bed up; whereas, after the beginning of April these can be almost dispensed with. It is needless to get the hotbed ready long before the plants are fit to put into it, unless there is no other convenience for raising the seeds, in which case it should be prepared three weeks earlier. If, however, the plants can be raised somewhere else than in the bed, it is better; and in such a case the seed should be sown when the fermenting material gets its first turning, and they will be ready for planting just about the time the bed is ready, if all have gone on well. A dozen good seeds or more should be sown to ensure a sufficient number of plants; a 6-in. pot will hold them all, and it should be well drained and filled with fine, light soil, in which the seeds should be sown and covered with a little fine soil. The pot should be plunged up to the rim in a bottom-heat of 80° or 85°, and no water should be given for three or four days after sowing, or until the seeds are seen to be pushing through, when the soil may get a soaking with tepid water, and be kept moderately moist afterwards. When the plants have made their first rough leaves, they should be shaken carefully out, and potted off singly in 4-in. pots, using a light, fine, and open soil, and potting them right up to their collars, and returning them to the hotbed. From this time also—in fact, from the time they appear above the soil—they must have an atmospheric temperature of from 65° to 70° at night, with a rise of from 5° to 20° during the day, accordingly as the weather is clear or dull, and treated to genial temperature generally, but not kept too damp overhead. The plants under this treatment, and if they have been kept near the glass, will grow rapidly, and will be ready for planting out in the bed by the time the frame is ready for them. A week or so before planting, 9 in. of soil, of the kind before described, should be placed in the frame in the form of a ridge, rounded on the top a little, or it may be spread out perfectly flat in the same slope as the frame. When the soil has got warm, the Melons should be planted—two in the centre of each light—and watered; and if they have not been topped before, that operation should be performed now, leaving only two or three good leaves, from the axils of which the bearing limbs will proceed.

Training and General Treatment.

We have recommended two plants to be planted in each light, which may appear close to experienced cultivators, but it is the best way to insure a regular crop with the inexperienced. The plants are placed back to back, and one is trained towards the back of the frame, and one towards the front. Two limbs only must be trained from each plant, in the form of a V; that will be one leg towards the corners of each light. Before they have travelled so far, however, say more than 3 ft., they must be stopped by having their points pinched off, and both limbs of the same plant must be stopped on the same day, even

though the one be shorter than the other. This is to insure the production of flowers on each limb at the same time, and a simultaneous "set," for it is a peculiarity of the Melon that if one fruit be set a few days before the others, that fruit will swell and the others will not. For this reason the methodical pinching and training of the Melon is an important matter. Very frequently the later-set fruits will just stand still when about the size of small marbles (unless they turn yellow and drop), and then begin to swell when the fruits that got the lead have ceased swelling and begun to ripen; this we have noticed often. After pinching, each limb will produce side shoots along the stem, all of which must be pinched off at the first joint, and kept pinched, except two or three on each side near the extremity of the limb; these must be left, and pinched in their turn, two joints forward or one joint beyond the fruit, which is likely to appear at this stage, either on the first laterals or the sub-laterals; and when the flowers expand they must be impregnated with a camel's-hair pencil from the pollen of the male flowers, which always appear in abundance. Two days will suffice to show whether the fruits have set well or not, and in a few days more the number may be reduced to three or four to each plant; it is always well to set plenty of flowers the first chance to ensure a crop. After this the pruning and training consist in allowing the bearing shoots to grow, and thinning the others out by turns, so as to prevent overcrowding; but the fewer pegs used the better. As regards airing, it is a good plan never to shake off air altogether, unless when the night temperature falls below 70°, and it should be gradually and sufficiently increased during the day with sun-heat to prevent the temperature rising above 86° or 90°, but reduced at a quicker ratio in the afternoon in order to shut in sun-heat against cold nights. Shading should never be used, except for a couple of days after the plants have been put in, and syringing once a day, and that on sunny afternoons only, when the frame is shut up, will be quite enough. The bed should be watered thoroughly with tepid water when it appears to be dry to the touch, but hotbeds do not require such frequent waterings as beds placed above hot-water pipes.

"Field."

BULLFINCHES AND FRUIT-BUDS.

BULLFINCHES are once more at their spring work of bud-thinning, or rather the absolute clearing of Plum trees, and where these birds abound, they are destroying the pistils or nectaries of Apples and Pears where the blossoms are partially opened. I observe that they treat different buds with different degrees of attention. Plum-buds never receive more than one peck, which is invariably of sufficient force to drive the bud to the ground. They peck so rapidly that I have noticed thirty buds fall in a minute; on a careful examination of the fallen buds, a small part of the pistil appears removed, and occasionally a piece of the ovary. Is it for this infinitesimal morsel that the buds are knocked off? Or do the bullfinches become so fastidious in their tastes that, like the gods of the ancients, they feed only on nectar, and destroy the fruit-buds in their eagerness to obtain it? Saffron was formerly cultivated extensively for the sake of the dried pistils of the flowers—and are whole crops of fruit to be sacrificed to fatten bullfinches and others of the feathered tribe on the tips of pistils, the bases of ovaries, or the sweets of nectar? If so, their songs may well be sweet and their breasts rosy red. But their beauty and their song may also be purchased too dearly. I wish some student of ornithology would investigate this matter and inform fruit cultivators why bullfinches destroy the buds with such celerity and apparently for such very limited food results. Again, they are much longer in their attacks on Pear blossoms than on those of Plums, scooping the former out rather than knocking them to the ground; moreover, they seem to eat much more of them, and hence they destroy fewer in the same time. I may here remark that I do not believe in the insect theory. The bullfinches seldom, if ever, eat insects; besides which, I have never been able to discover any insects in the buds of Plums and Pears that they were determinately destroying. The suggestion that the birds are in any sense or degree the friends of fruit-growers must be propounded in utter ignorance of the enormity of the evils and losses they inflict: facts, losses, crosses, failures innumerable, all point to a contrary conclusion. The bullfinch, notwithstanding his winning ways, his beauty of plumage, and sweetness of song, is the arch enemy of the fruit cultivator in the spring, and often destroys more crops in the bud than the stinging frosts or the most withering winds.

D. T. FISH.

SOCIETIES (AND) EXHIBITIONS.

ROYAL BOTANIC SOCIETY, REGENTS PARK.

MARCH 21.

THIS was the Society's first exhibition this year, and the main difference observable on contrasting it with the spring shows of former years was the nearly total absence of stove and greenhouse plants, and the preponderance of more easily cultivated bulbs and flowering decorative plants. Hyacinths, as shown by Messrs. Veitch & Sons and by Messrs. Barr & Sugden, were in excellent condition; as also were Tulips, Narcissi, and other early spring flowers. New plants were scarcely so numerous as usual; most of those shown on this occasion have been exhibited and certificated elsewhere, and as they have already been described in THE GARDEN, we omit them on this occasion.

Certificates.—These were awarded to the following new plants and florists' flowers:—

Panax laciniatum (Veitch and Williams).—A graceful little stove shrub, which will be useful as a fine-foliaged plant. Its leaves are rather finely cut, and are of a fresh green colour, the whole plant being evidently of a vigorous habit of growth.

Alsophila philippinensis (Veitch).—A very stately-habited Tree Fern, having ample dark green fronds nearly 4 ft. in length, the pinnae being of great substance, and curled slightly so as to give the fronds a crispulate appearance. The plant is quite distinct, and, being a strong grower, merits culture either for decorative or exhibition purposes.

A. pycnoptera (Veitch).—Like the last-named species this is robust in habit, the fronds being ample and of great substance; in colour it is a light, fresh green, forming quite a contrast in this respect to that of *A. philippinensis*.

Cyclamen roseum grandiflorum (Edmonds).—A large-flowered form of *C. persicum* with petals of a rich rosy tint, the ring at the base being deep crimson.

C. persicum, White Swan (Edmonds).—A large-flowered form similar to the last in shape and size, but of a pure white colour throughout—a desirable variety.

Nephrolepis Duffii (Veitch).—A dwarf and elegant-habited Fern, having constricted dark green fronds curiously crested at their apices as in some *Lastreas*. It appears to be vigorous in habit, and will be a welcome addition to decorative Ferns.

Adiantum æmulum (Veitch).—A pretty Maiden-hair Fern, apparently as vigorous as *A. cuneatum*, and not unlike *A. assimile* in habit, but having more rhomboidal or diamond-shaped minor divisions. The fronds are light and graceful in outline, and of a fresh green tint.

Croton, Earl of Derby (Veitch).—A robust-growing plant belonging to the *C. trilobum* section, and having bold, halberd-shaped leaves of a dense green colour boldly blotched with golden-yellow. It is a plant which cannot fail to be popular when more plentiful.

Hyacinth, Orange Queen (Veitch).—A striking, rosy-crimson-flowered single variety, forming an excellent spike, and well deserving a place in every collection.

Hyacinth, globosus (Veitch).—A strong-growing variety, bearing a stout spike of double buff-tinted flowers nearly 2 in. in diameter.

Hyacinth, Queen of Lilacs (Veitch).—A distinct and free-growing kind, bearing a stout, erect spike of soft lilac or purplish flowers.

Hyacinth, Marquis of Lorne (Veitch).—A vivid, single-flowered, blue variety, the flowers of which are arranged symmetrically on a stout spike.

Pultenæa rosea (Rollisson).—A bushy little Pea-flowered plant, not unlike a Heath in general appearance, bearing tufts of rosy-lilac flowers at the ends of the young branches. It is a native of Mount William, one of the peaks of the Grampian chain in the colony of Victoria; and as it is found at an altitude of 5000 ft. it is supposed to be nearly hardy, it will therefore make a pretty cool greenhouse shrub.

Cinerarias (James).—Six varieties were selected from Mr. James' batch of seedling Cinerarias as being worthy of floral certificates, all of which were of dwarf and compact habit, and furnished with large and well-formed flowers arranged in dense, shapely clusters. Of these, one named *Mary*, a rosy-lilac, nearly perfect flower, was decidedly the best. Mrs. F. Watson is a large rosy crimson, having a distinct white ring around the eye. Thomas Winter is a good purple form; as is also the rich rosy-crimson Thomas Stent. Purple Gem is a large violet-purple flower, the colour of which is delicately shaded towards the narrow white ring which surrounds the eye. Jane is a good rosy-lilac; and Mrs. Winter a rich, dense purple flower.

Miscellaneous Plants.—A select group of flowering and fine-foliaged plants came from Messrs. James Veitch and Sons; among them we noted *Philodendron Haltonianum*, a kind with undulated, trilobed, dark green foliage; several new *Crotons*; *Dendrobium amethystoglossum*, a rare species bearing clusters of white amethyst-tipped flowers on leafless pseudo-bulbs 2 ft. in length. In the same collection were likewise *Alsophila philippinensis* and *A. pycnocarpa*, both stately and distinct Tree Ferns with ample fronds, and a dwarf, attenuated, crested *Nephrolepis* named *Duffii*, which is likely to please all Fern growers, as is also the delicate, grass-green foliaged *Adiantum æmulum*. The Brisbane Lily (*Eurycyles anstraliasica*) to which we have before alluded, was conspicuous, as was also the harsh-looking *Masdevallia chimera*. Messrs. Veitch also

sent a perpetual-flowering Clove Carnation named Tom Thumb Scarlet, a kind dwarf in habit, and bearing bright orange or vermilion-scarlet flowers on stems scarcely 6 in. in height. A showy group of forced Clematises came from the same establishment, the most conspicuous varieties being Miss Bateman, a silvery-white, eight-rayed flower; Stella, lilac purple; Lady Londesborough, lilac; and Marie Lefebvre, a large, eight-rayed lilac flower with a bluish-purple stripe down the centre of each sepal. This group was tastefully associated with fresh green specimens of the Japanese Cut leaved Maple. A large collection of Hyacinths shown by Messrs. Veitch deserved more than a passing notice, for, in addition to the plants being remarkably well grown, the spikes generally were of large size and well finished; the tasteful way, too, in which the colours were blended, and the finishing off of the whole with a top-dressing of fresh green Moss distinguished this collection from all others. It included a selection of all the best varieties in cultivation. Among the newer kinds we noted *Reine de Naples*, a vivid rosy-crimson, with a stout and well-formed spike; *Purity*, white, large both in flower and spike; *John Bright*, good single blue; and *Anton Belle*, a distinct variety, of a soft rosy-lilac colour, the flowers, which are well shaped, being remarkably well arranged on the spike. The best twelve Hyacinths in the nurserymen's class came from Messrs. Barr & Sugden, who had the following kinds: *Czar Peter*, light blue; *Grandeur à Merveille*, creamy-white; *General Havelock*, black-purple; *Macaulay*, rose; *Leviathan*, white; *Haydn*, purple; *Vuurbaak*, crimson; *De Candolle*, lilac-blue; *King of Blues*, dark blue; *Bleu Grand*, light blue; *La Grandesse*, pure white. All these were single kinds, having bold, well-developed spikes, supported by stout, fresh green foliage. Mr. James Douglas, who was first in the amateurs' class for twelve Hyacinths, had *Ida*, single yellow; *Vuurbaak*, crimson; *King of Blues*, dark blue, very good spike; *Grandeur à Merveille*, flesh; *Baron Von Tuyll*, dark blue; *Fabiola*, light red; and others: all good. In the open class for Hyacinths, Mr. Douglas was first with well-grown spikes, Messrs. Barr & Sugden being second, and Messrs. Cutbush third. The first prize for twelve pots of Tulips was obtained by Messrs. Barr & Sugden, who had the following varieties:—*Vermilion Brilliant*, scarlet and yellow; *Proserpine*, purple; *Joost Van Vondel*, crimson, white, and cerise; *Gresdeline*, rosy-purple, edged with straw colour. In the amateurs' class for Tulips, Mr. Douglas was first with *White Pottebakker*, white; *Van der Neer*, purple; *Vermilion Brilliant*, scarlet and yellow; and *Keizer Kroon*, scarlet edged yellow. Narcissi in pots were very effective, the first prize being awarded to Messrs. Barr & Sugden; the best six pots of Lily of the Valley came from Mr. J. Douglas. Mr. G. Wheeler obtained the first prize for twelve miscellaneous stove and greenhouse plants, the most remarkable specimens being *Phalaenopsis Schilleriana* and *Eriostemon densiflorum*. Mr. W. P. Roberts, gardener to W. Terry, Esq., Peterborough House, Fulham, sent twelve well-grown pots of bulbous plants, to which the first prize was awarded, the most effective plants being *Amurillus Distinction*, *Triteleia uniflora*, *Scilla sibirica*, and blue and white *Muscari* of different kinds. Mr. R. Dean was first in the class for hardy Primroses with good plants of *Primula denticulata*, the larger and darker-flowered *P. purpurea*, an effective kind, with flowers in dense, globular heads, well elevated on stout scapes; the others were lilac, crimson, yellow, and double forms of *P. vulgaris*. The best six Chinese Primulas came from Mr. James, all fairly well-grown specimens, the colours of which were white and purple. Mr. B. S. Williams sent a large and well-arranged group of Orchids, Palms, Ferns, Agaves, and other decorative plants in excellent condition. Well-grown plants of *Dielytra spectabilis* came from Messrs. J. Carter & Co. Among *Dentzias* the best were sent by Mr. J. Douglas, of Loxford Hall, Hford, whose specimens consisted of well-grown old plants, 3 ft. or more in height and nearly as much in diameter, the sticks around which they were trained being completely hidden in fresh green foliage and snow-like masses of flowers and buds. Mr. James, of Redlee, Isleworth, contributed smaller but well-bloomed plants. The best group of twelve Cyclamens also came from Mr. James, who showed remarkably robust and well-bloomed plants in 32-sized pots, each bearing from 50 to 150 or 200 flowers, the colours of which were bright and distinct. Mr. H. Little was first in the amateurs' class for six Cyclamens, each of which was furnished with about 200 blooms, but much smaller than those in the last-named class. Mr. Charles Turner sent his new perpetual-flowering Carnation, *Rose Perfection*, in good condition, and also a stand containing a dozen flowers of other varieties, among which we noted *C. Gloire de Lyon*, scarlet; *Mazeppa*, rose-flaked scarlet; and *Fairy Queen*, a small white flower striped with rose. Mr. Turner, who was the only exhibitor of pot Roses, gained the first prize with well-grown specimens 4 ft. through, the sorts being *Alfred Colomb*, rosy-crimson; *Celine Forestier*, yellow; *Paul Verdier*, rosy-purple; *Le Mont Blanc*, creamy-white; *Marquise de Castellane*, a full bright rose; and the ever-welcome *Souvenir d'un Ami*, with globular, flesh-tinted buds and flowers. Mr. Turner also obtained a first prize for six well-flowered Azaleas, each about 3 ft. high and 2 ft. in diameter. The most distinct and effective sorts were *Stella*, scarlet flushed with purple; *Belle Gantoise*, blush; *Duc de Nassau*, crimson; and *Apollo*, white flaked with rose. In the amateurs' class Mr. A. Ratty, of the Hoo Gardens, Sydenham, was first with well-grown pyramidal plants. Messrs. W. Paul & Son, of Waltham Cross, sent twelve stands of cut *Camellia* blooms in very good condition. Among the varieties we noted *fimbriata*; *Princess Charlotte*, a white, elegantly-cupped flower; *elegans*; and others. Mr. James, gardener to W. F. Watson, Esq., Isleworth, sent a collection of well-grown seedling Cinerarias similar to those shown at the last South Kensington meeting. Messrs. Smith & Sons, of Dulwich, showed a stand of cut Cineraria flowers of good form and brilliant colour, to which we have previously referred.

ROYAL HORTICULTURAL SOCIETY.

MARCH 21.

At this exhibition, which was a very interesting one, nearly all the principal nurserymen showed collections of early flowering or new decorative plants. Messrs. Veitch & Sons had an extensive and well-arranged group of forced Roses, Clematis, Hyacinths, and a small group of new fine-foliaged plants, to several of which certificates were awarded. Mr. J. Wills showed some thirty remarkably well-grown specimens of his new seedling *Dracænas*, the most conspicuous of which were *D. terminalis* alba, *D. Carolettae*, *D. salmonæa*, and *D. Gladstonei*, all of which are decided improvements on existing kinds. A beautiful group of fine-foliaged and flowering plants, arranged for effect by Mr. Wills, was much admired, and was mainly composed of slender Palms interspersed with Ferns and other fine-foliaged plants, Azaleas, &c., the whole being fringed with creeping *Ficus*, *Isolepis gracilis*, among which pots of the sky-blue *Myosotis dissitiflora* or early-flowering *Forget-me-not* were placed with excellent effect. Sir H. Peek sent from Wimbledon House a choice and well-grown group of *Orethids*, among which we noticed a large-flowered plant of the beautiful *Odontoglossum Roezli album*.

First-class Certificates.—These were awarded to the following new and rare plants:—

Croton McArthurianum (Veitch).—A distinct and free growing variety of bushy habit, having broadly strap-shaped leaves curiously lengthened at their apices into tail-like terminations; their colour is a dark glossy green, variously barred or blotched with golden yellow, and here and there suffused with red—altogether a handsome stove shrub.

C. trilobum, Earl of Derby (Veitch).

Nephrolepis Duffii (Veitch).

Primula purpurea (Dean).—A robust and free-flowering plant belonging to the *P. denticulata* group, but with larger flowers and of a more decided purple colour. It is so distinct and effective that it will be welcomed in all collections of hardy flowers.

Cyclamen persicum, Ruby (H. Little).—A free-growing and profuse-blooming kind, bearing vivid crimson purple or rather ruby-tinted flowers. It will be useful for breeding purposes, and for contrasting with the white and rosy-lilac varieties in decorative arrangements.

Primula sinensis fl.-pl., Marchioness of Exeter (Gilbert).—A robust-growing plant, the specimen exhibited being 2 ft. 5 in. in diameter, and bearing 113 fully expanded flowers, and twice that number of unexpanded buds. This plant had been grown from a cutting inserted in April last, and was perhaps the finest specimen of a double-flowered Chinese *Primula* ever exhibited. The flowers are large and perfectly double, the colour of this particular variety being rosy-blush; but the strain varies in tint from pure white to carmine, some of the seedlings being very delicately flushed and speckled or flaked with rose.

H. P. Rose, Duchess de Vallambrosa (H. Bennett).—A robust-habited variety, evidently belonging to the same race as Captain Christy, which it somewhat resembles in form and habit. The colour is a delicate silvery-rose, inclining to bright salmon-rose in the centre.

Poinsettia pulcherrima plenissima (Veitch).—A now well-known plant, to which a certificate was awarded for the first time. It is a great improvement on the type, from which it differs in having a greater profusion of crimson-scarlet bracts, forming what is popularly known as a double inflorescence. It was described and figured in the pages of THE GARDEN last year.

Fruit and Vegetables.—Mr. J. Maher, gardener to C. Allbansen, Esq., Stoke Court, Slough, sent a box of Cucumbers named Maher's Eclipse, along black-spined variety; and the Hon. and Rev. J. T. Boscawen sent a shapely, white-spined, seedless variety of Cucumber, which he has grown for some years in his garden at Lamorran in Cornwall. Mr. R. Gilbert sent from Burghley a small winter Cabbage of good quality, two splendid dishes of Mushrooms from open-air beds, and Rhubarb, Seakale, and French Beans in excellent condition. Mr. Batten, gardener to Mrs. Willis Fleeming, Chilworth Manor, Romsey, sent a very good dish of the rosy Extra Early Vermont Potato, grown on the back shelf of a Vinery; the tubers were planted on Jan 1 in 7½ in. pots.

ROYAL HORTICULTURAL SOCIETY AND FELLOWS' PRIVILEGES.

HAVING reason to know, from conversation with numerous amateurs and others, that the lengthened correspondence which has recently appeared in the newspapers has tended only still further to mystify the public, and consequently to injure the Society even more than was previously the case, I venture briefly to direct attention to the following facts, hoping thereby to remove the doubts of many who will then be willing to come forward and aid by their subscriptions a Society which has done in the past, and is still doing, much valuable work:—(1) The Society is now, financially, in a better position than it has been for several years past, but its income is still most inadequate, and, with additional aid, it would be able to carry on its experiments, and maintain the efficient working of those committees whose labours have been, and are still, so beneficial to the public. (2) Besides other valuable work, competitive trials of great scientific and practical value have for years been carried on, and are still continued at Chiswick with the best results, whilst the reports in the horticultural papers are sufficient testimony to the thoroughly successful working of the Scientific Fruit and Floral Committees connected with the Society. The fortnightly shows are also a great success, even beyond the most sanguine expectations. (3) What is now required is to obtain an increase of Fellows and members,

and I think it cannot be too well known that those who wish to join the Society can do so on the following terms:—(A) By payment of one guinea per annum, which payment entitles the member to see the gardens at all times, including all shows, fêtes, conversazioni, and promenades, both at Chiswick and South Kensington, but without giving a vote at the meetings of the Society; or (B) by payment of two guineas a year, which entitles the Fellow to one yearly transferable ticket, admitting the bearer every day, and to all shows, fêtes, conversazioni, and promenades both at Chiswick and South Kensington, and enabling him to visit the shows at an earlier hour than the general public; also admitting the bearer with two friends on all ordinary days; to receive forty orders giving free admission to promenades on all days, excepting show and special days; to have the right of voting at all meetings, besides other privileges; or (C) by payment of four guineas a year, which entitles the Fellow to two yearly tickets, both of which are transferable, and which give the bearers admission every day and to all shows, fêtes, conversazioni, and promenades, both at Chiswick and South Kensington; to visit the shows at an earlier hour than the general public; to receive forty orders giving free admission to the promenades and on all days, excepting show and special days; the right of voting at all meetings; free admission to the reading room, besides many other minor privileges. (D) *Bonâ fide* head gardeners, on payment of 10s. 6d. annually, are admitted as members with the same privileges as amateurs who pay one guinea per annum. (E) There is now no entrance fee, and any one subscribing is in no way liable for any amount beyond the subscription for the year. I am surely not too sanguine in expressing a hope that throughout Great Britain, where the love of flowers is so universal, there are many who will be willing to come forward, and at so small a cost to themselves, to help to support a society which has done so much good in the past, and which I feel confident must, with efficient aid, have a very brilliant future. I venture to appeal on its behalf for such support, and shall gladly receive the names of any who are willing to become members; and I shall be happy to obtain the necessary signatures to the nomination papers, so as to save as much trouble as possible as regards election, &c.

March 20.

HARRY J. VEITCH, *Royal Erotic Nursery, Chelsea.*

GUINEA FELLOWSHIPS.

MAY I beg the favour of space for a last letter on Guinea Fellowships in the Royal Horticultural Society? The Council have adopted the guineas, but, alas, only to the extent of membership without a vote, instead of, as we asked, fellowship with a vote, as our one object has been to infuse good, new horticultural blood into the Society and so strengthen it. I need hardly say that the restriction renders the concession in this view worthless. I am told that it was considered if a vote had been given, so many persons living in the neighbourhood of the gardens would have become Guinea Fellows that the votes of those not on the spot might have been swamped. Taking the idea from a member of Council after the last general meeting, I suggested to the President that if the Council would give Guinea Fellowships with votes to those living outside the London postal district, I thought many good country horticulturists might be induced to come in. This was only on the principle that if you cannot get best you must try for second best, the Society having still its old heavy load of incumbrances on its back; but I thought that our Fellows would get horticultural consideration for their guineas, and that they would leave the Society. This proposal was not adopted. Some of your readers who have given their names as would-be Guinea Fellows ask what they ought to do. I think our best course is to go on quietly collecting names, and waiting, trusting to the chapter of accidents. The Council may re-change their policy. It is an unpleasant reflection: but for country horticulturists to give their guineas to the Society without getting a vote, would be, I think, merely to that extent to bolster up a state of things which the experience of now very many years has shown to lead only to constantly recurring seasons of discomfort and failure. The question is, as I have had to repeat over and over again, one of simple common sense. Every scientific society with head-quarters in London has more or less prospered, except the Royal Horticultural Society; there is no science with nearly as many friends as horticultural science. Every other scientific society (excepting the Zoological Society, with its show every day, and the position of which is essentially peculiar), trusts for its support to those interested in its object. The Royal Horticultural Society, except quite at its commencement, has never done so; surely it is a fair inference that if it followed the course of its sister societies in this respect, with the advantages of its wide sweep and more general constituency, it would become the most prosperous of all. It now only remains for me to thank you for the valuable space given to me, and to thank those good horticulturists in the country who have taken so much trouble in this matter; their work will assuredly bring fruit hereafter. Four years ago, when Guinea Fellowships were first mooted, their supporters were counted by tens; they now are by hundreds, including the best horticulturists of the country: when they come up next (with the gained experience) they should be by thousands. I ought perhaps to apologise for having put myself forward, but having served for many years in almost every office of the Society, I know exactly its requirements, and having time and means, knowing its past troubles, and seeing a remedy against future ones, it seemed that I ought (no one else having come forward) to undertake the work at first. Before long I became merely the mouth-piece of many of the best and most experienced horticulturists of the country, who urged me not to let the matter rest till the Guinea Fellowship was accomplished and the Society reconstituted.

Heatherbank, Weybridge Heath.

GEORGE F. WILSON.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

PEAR INSECTS.

(ANTHONOMUS PYRI).

PARIS is now suffering from a pest from which this country is happily free. From recent advices we learn that the larvae of the above insect are very active in destroying the fruit-buds of the Pear in the fruit gardens about Paris; as our correspondent says, it is even a worse enemy than the spring frosts, destroying the buds of whole trees at a time. We have an allied species in England (*Anthonomus pomorum*) which specially attacks the Apple tree; another which attacks the Cherry tree; a third devoted to the Bramble, and so on. The Pear tree species has not, however, we believe, been found in England. But twenty years ago Paris, too, was almost free from it. Boisduval, writing in 1867, says:—"For some years past this insect, which was formerly almost unknown in the environs of Paris, has become a perfect scourge for the Pear trees. Its appearance in our gardens, according to M. Forest, does not reach farther back than a dozen years." The perfect insect is a long-snouted weevil, about $2\frac{1}{2}$ lines in length. It winters in a torpid state in the crevices of the Pear tree. It awakes at the commencement of spring (beginning of March) couples and lays its eggs in the flower-buds, one in each bud, eating out a tiny hole with its beak to allow passage for the egg, which is hatched in about eight days. No bud containing a larva ever flowers; a blackish circle is formed at its base, and the bud itself ends by blackening, too, and drying up. The larva takes about a fortnight to reach maturity, and it then undergoes its metamorphose in the bud itself. This is just one of those cases in which combined action might do something to abate the mischief. It is obvious that, with a minute insect which in the perfect state has wings, and flies readily from tree to tree, it is not in that state that it can be attacked; but in the larval and pupal stages it is at our mercy, if we will take the trouble. The attacked buds are readily recognisable, and if every one were everywhere to pick them off from the trees in their own garden and burn them, the insect might be stamped out in a single season; but although that might be easy in a small garden with a few espaliers or trained wall trees, it would not be so easy in a large orchard where there are high and thickly branched trees. Still, there is no other remedy, and if every one made an effort, and all at the same time, it seems to stand to reason that the insects would be much diminished in number and kept within ordinary bounds. What is wanted just now in this country and in all other civilized countries—not only for this insect, but for hurtful insects generally—is a commencement of this system of stamping out. All that is needed is a knowledge of the right time to attack each insect, and simultaneous action in doing so. The latter is the real difficulty, and Government ought to undertake it.

A. M.

GRASS LAWN DEPREDATORS.—I have sent you what I take to be the larvae of the daddy long-legs, which have committed much damage in St. James's Park, the Embankment Gardens, and London Fields. Can you oblige me by suggesting an easily applied remedy?—G. H. [As you suppose, the grubs are those of the daddy long-legs. To destroy them I should be disposed to sprinkle the ground of the Embankment with Paris green (emerald green of our shops), and then water it. I have tried the experiment with the specimens sent, putting them in earth in a box, and next morning they were all lying dead on the surface. The price of emerald green is 1s. per lb., but a small quantity will go a long way.—A. M.]

SCILLA BIFOLIA ROSEA.—This rose-coloured form of one of our most attractive spring-flowering bulbous plants, is now in good condition in Mr. Parker's nursery at Tooting. Though not so showy as the blue-flowered Scillas, yet when associated with them it forms a pleasing contrast; and when plants of it are plentiful, and it can be had at a cheap rate, it will doubtless be appreciated.—C. S.

ANEMONE FULGENS FROM SEED.—In the extensive experiments made by Mr. Henry Vilmorin in the culture and propagation of this plant it was found that many of the seedling plants were not of the brilliant colour so remarkable in the true and finest strain, but of a red with a shade of brick in it. We have seen many of these plants which were carefully separated from the pure stock. They are singularly alike in hue, and manifest no tendency towards *A. stellata*. On the other hand, plants of the true colour are raised in this way, and sometimes remarkably fine ones, but seed is, nevertheless, not to be depended on for reproducing the plant in its finest form. Nor did any of these numerous seedlings ever manifest the slightest tendency to approach the broad-petalled *A. coronaria*. It must not be forgotten that there are here and there single forms of the old garden *Anemone coronaria* which are splendid in their brilliancy of colour, and there can be little doubt that one of these was the variety sent by Mr. Boscawen last week, and which is described on p. 225. Some of these forms deserve to be increased and widely distributed by nurserymen.—V.

THE PITMASTON PEAR.—This is, so far as I know, the finest Pear ever raised in England. The figure in no way over-praises the fruit, indeed, I have seen larger specimens. The flavour is in all ways excellent, and the flesh melting and tender as could be desired in a Pear. With this and the precious Doyenné du Comice we are now rich in the noblest Pears that could be desired for their seasons. Can any reader of THE GARDEN tell us a little more of the origin of the Pitmaston Pear?—ENQUIRER.

ASPARAGUS FORCING IN PARIS.—I have lately visited a very extensive establishment for the forcing of Asparagus in Paris, of which a few words may not be without interest to readers of THE GARDEN. In all about half an acre of glass is devoted to the culture, and a supply is obtained from early in September to the end of April. It is forced in three ways—in houses heated with hot water; in frames sunk in the ground and heated in the same way; and lastly, in frames plunged in warm stable manure. It appeared to be forced with equal success in each case, though the stable manure seemed to offer the simplest means. As usual here the frames are small—about 4 ft. wide; the roots are placed directly on the manure, not flat as they would be in the open ground, but packed as closely as possible, from 500 to 2000 roots—according to size—going under one light; a mere sprinkling of soil is placed over them. As a result, the shoots come up very thickly. The roots employed are strong and fine ones, three years from the seed; as many as five crops of roots follow each other throughout the autumn, winter, and spring in the same frame. The universal straw mat is used to cover the frames at night. A dozen persons were employed solely in gathering and "bundling" the Asparagus for market, so that the quantities gathered for use are considerable. All is done in the simplest and rudest manner, the securing of good crops being the only thing considered.—R. W.

SHOW OF COVENT GARDEN PRODUCE.—It is proposed to hold an exhibition of fruits, flowers, and vegetables in the Royal Horticultural Gardens, at South Kensington, the exhibits to be contributed by the salesmen and dealers in Covent Garden Market. The idea, which is a good one, originated, we believe, with Mr. W. Howard, who, in conjunction with Mr. A. F. Barron, has conferred with the principal market dealers, who agree to the project, and the exhibition is, we understand, arranged to take place on the 18th of April. When it is considered what a wealth of home-grown and imported fruits and vegetables is exhibited daily in Covent Garden Market, together with a profusion of the most tasteful wreaths, bouquets, and other floral decorations, the exhibition now proposed ought to be one of the most interesting ever held at South Kensington. This movement deserves all the more encouragement from the fact that whilst gardening generally has been steadily progressing, our exhibitions of garden produce have kept to the old beaten track. We have looked on the "twelve stove and greenhouse plants," the "six Orchids," and the "nine fine-foliaged plants," until we are weary of the name of horticultural shows, in which the only innovation of recent years has been the classes set apart for interesting hardy flowers. Let us, therefore, hope that this show of Covent Garden produce will meet with the amount of encouragement which it deserves.—B.

FIG TREES AT ARGENTEUIL.—The Fig trees so well and extensively grown round Argenteuil have now been raised from the earth more than a month, and the leading bud of each shoot has recently been nipped out. The reason of raising the shoots so early from the earth in which they are buried, is that a longer stay would probably cause the fruit-buds to decay. The severe frosts that endanger the

Fig are over by the 20th of February. The trees are trained in huge bundles leaning slightly towards the earth, so as to facilitate their interment after the pruning in November. Some of the trees trained thus were very large specimens before the severe winter of 1870 and 1871. The people had to fly from their homes in the autumn of that eventful year, and as the trees were not buried, most of them were cut to the ground. Now, however, many of the young plantations are making rapid progress. It is not often one sees an example of culture in the open air so successfully adapted to adverse conditions.

LILY OF THE VALLEY FROM HOME-GROWN ROOTS.—Mr. Henry Wood, of Willow Lodge, Mitcham, has sent us some very remarkable spikes of Lily of the Valley, each bearing from fifteen to twenty flowers, each bell being nearly one-third of an inch in diameter. The roots which produced these fine spikes are of home growth.

A BEAUTIFUL SPRING-FLOWERING SHRUB.—We have lately (March 21) seen with Messrs. Thibault and Keteleer, at Sceaux, one of the most graceful and abundant-blooming, spring-flowering shrubs that could be desired. This was *Andromeda japonica*, a neat shrub, veiled over, and with pendent racemes of white waxy bells. The plant is unfortunately very scarce as yet; it is said to be hardier than the common and much smaller *A. floribunda*.

A SULPHUR-CROWNED CORBULARIA.—One of the most beautiful and distinct of all the hardy flowers which we have seen in bloom this week, is a large-flowered Hooped Peticotot Narcissus or Corbularia, sent us by Mr. P. Barr. The individual flowers are much larger than those of the common variety, but the main point of distinction, and one which contributes most to the attractiveness of the plant, is its distinct colour. The widely-expanded corona, which in all the other varieties known to us is of a deep rich golden-yellow tint, is in this case of a clear sulphur-yellow or primrose colour.—B.

THE FOUR SEASONS' STRAWBERRY FORCED.—This useful little Strawberry finds a place among the fruits and vegetables forced for the Paris market. It flowers and fruits freely and well in the little frames so much used round Paris plunged in stable manure. The Strawberries are planted out in autumn where they are to fruit, and when the lights are put over them, the plants are within a few inches of the glass. At present, being both in flower and fruit, they form a pleasing sight. In the market lately they have been worth twice the price of the larger kinds. In frames of the same kind the Parma Violets lately spoken of in THE GARDEN are grown.—V.

RHODODENDRON NUTALLI IN FLOWER.—An attractive flowering specimen of this greenhouse *Rhododendron* may now be seen in the conservatory at Claydene, Edenbridge, Kent. It is 9 ft. high, grows in a 14-in. pot, and is fourteen years old. It flowered for the first time in 1874, when it produced two buds and ten blossoms; in the following season it had three buds and nineteen flowers; and this year it has five buds and twenty-seven flowers—one truss consisting of eight flowers measuring 1½ in. in diameter; another truss has seven flowers, and two have six flowers. The average size of each bloom is 7 in. in diameter, and the depth of the cup 6 in. The blooms are pure white and very fragrant. The fifth bud will expand in a few days.—A. O. FELCOUR.

PLANTING ASPARAGUS AT ARGENTEUIL.—The present is the season of planting in this town, where Asparagus is cultivated so well. The planting season lasts from the first week in March to about the 20th of April. The best Asparagus in France is grown here, and by one system mainly. The plants, one-year seedlings (never more), are planted in shallow trenches 7 in. or 8 in. deep, the plants a little more than 1 yard apart, and the lines 4 ft. apart; no manure is given at planting, no trenching, or any preparation of the ground (beyond digging the shallow trench) takes place. In subsequent years a little manure is given over the roots in autumn, the soil thrown out of the trench, and forming a ridge between them, is planted with some crop in spring. In all subsequent years the soil is placed over the crowns in spring and removed in autumn. The culture is for the most part conducted by peasants who own their own ground; the size attained by the shoots is very remarkable. The soil varies a good deal, but not the system; good results are obtained in all soils by it. In planting on cold clay soils, the only difference made is that of planting a little shallower.

THE STEEL GLOVE FOR THE PHYLLOXERA.—This useful article, recently invented in France for the removal of the loose bark, &c., from the stems of Vines, is also used with good effect in removing Moss, &c., from other trees. A great deal of work may be done with it in a very short time, and the stems cleared of much that might afford cover to the eggs of insect enemies. It is very well made, and is lined with canvas to make it convenient to the hand.

PETUNIAS DOUBLE AND SINGLE.

PEOPLE are apt to look with disfavour on the *Petunia* as a bedding plant, but, nevertheless, it possesses great merits for decorative purposes, whether it be employed to form a mass of colour or a variety of tints. *Petunias* are not only free bloomers, but they last long in flower; and though a storm of rain may destroy the effect of a mass of them, two or three sunny days will soon brighten it up and restore to it its wonted beauty. Although I entertain a general dislike to the modern system of flower gardening, which consists in bold masses of isolated colours, I nevertheless admire the *Petunia* when employed in this way. There are a few varieties with self-coloured flowers, such as purple, rose, pink, &c., that, when propagated by means of cuttings, make a dwarf stocky growth, flower with remarkable freedom, and rarely produce seed. A bed of mixed colours is also highly attractive, and especially so when formed of the blotched and striped varieties. The first blooms of the finest strains of striped *Petunia* will, as a general rule, come self-coloured and then break into stripes and blotches of a very attractive character, which are more developed in hot weather than during rain. A pinch of seed of some good strain of striped *Petunia* will be certain to furnish some self-coloured flowers; and a few self-colours dotted about among the striped and splashed flowers afford a striking contrast; and then there is the additional advantage that the *Petunia* commences to flower when quite small in size, and continues flowering till cut down by frost. In some parts of the country *Petunias* are much grown as exhibition plants, and with remarkably good results. At Trowbridge, in Wiltshire, the annual exhibition being held in the end of August, *Petunias* in pots form a fine feature, but they are grown in a manner peculiar to the district. The plants are placed in large pots at least 8 in. or 9 in. in diameter, and the shoots are trained to a shield-shaped wire frame, which, leaning back, presents a front like that of an oval looking-glass. On plants thus managed I have counted as many as sixty to eighty blooms. I may add that it is only the free-blooming single varieties that are grown in this way. The double kinds are grown in the form of a bush, much as one would grow a specimen *Kalosanthes*. Both the single and double varieties make very good exhibition plants.

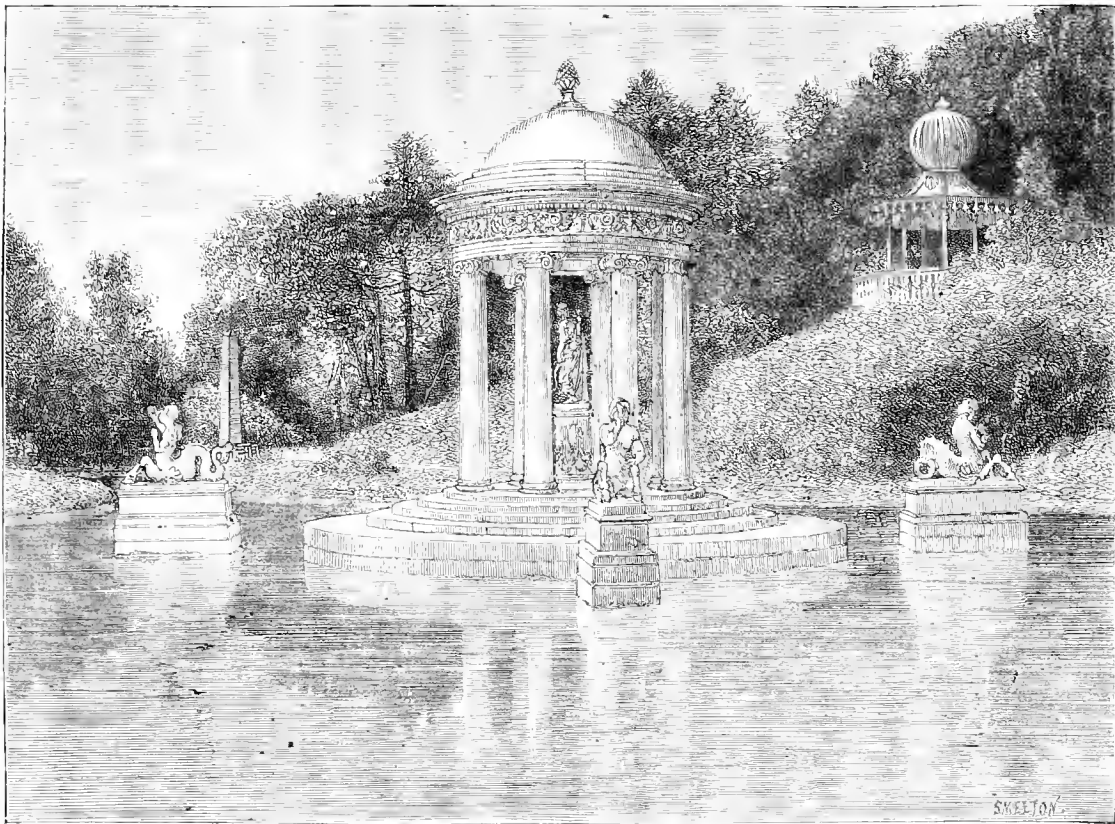
Petunias can be readily raised from seed, and any particular variety can be propagated by means of cuttings. Those who have a brisk bottom-heat at their command, may be content to sow their seed early in March, as it soon germinates; and by pushing their plants on they become strong by the end of May, when they may be planted out. Those who are not so well situated in the matter of heat, may sow their seeds in pans at the end of August, prick off the seedlings into shallow boxes, and winter them on a warm shelf of a greenhouse near the glass. It is by no means difficult to winter young plants of the *Petunia*. When planted out it should be into beds of rich soil, for when the plants get well established, a glorious head of bloom is invariably the result. In order to have a supply of cuttings of any particular variety, a few plants should be grown in 4½-in. pots during the summer, and wintered in them as store plants for supplying cuttings in spring; or cuttings may be taken of any particular variety in August, and put into 1½-in. pots, inserting from nine to twelve cuttings in a pot, and using a soil made up of two-thirds leaf-mould, one-third of mellow loam, and a little silver sand, taking care to have the pots well drained; these should have a gentle watering, be kept for a time in a close frame, and then wintered in the greenhouse. In spring these stock plants will supply many cuttings, which may be struck in a brisk heat in pans of sand. When rooted they should be potted singly in thumb-pots, and then grown on as required for planting out to flower in summer. It is not difficult to obtain a collection of fine varieties of both double and single *Petunias*. Of the former, King of Crismons, Mottled Beauty, Patroness, Favorita, Favour, Sensation, Mrs. Wilson, Diamond, and Minnie Evans, form a group of nine good and distinct varieties. They should be grown in pots and not planted out, giving them rich soil and good shifts, so as to keep them from becoming pot-bound too early in the season, plenty of air, and the branches should be kept well tied out. Of fine single varieties I may mention Spitfire, Moonstone, Black Knight, Master William, and Mrs. R. Roche among the self flowers; and among the striped and blotched varieties, Imperial, Mrs. William Elder, John Lindley, Mrs. Burron, Mrs. L. Wilson, and Miss Redman. But named varieties are now very plentiful, and any nurseryman can make up a small collection that could not fail to give satisfaction, while, from a good strain of seed, a large variety of striking forms would be forthcoming. D.

OPONTOGLOSSUM HALLI.—A plant of this *Opontoglossum* in Lord Lonsborough's garden at Norbiton, is now bearing numerous long, graceful flower-spikes, thickly studded with large and beautifully-marked blossoms. Associated with it are *O. crispum*, *O. Alexandra*, and *O. Pescatorei*, all in equally good condition.—C. S.

PALLAVICINI GARDENS, GENOA.

THERE is a curious garden at Genoa, that of the Villa Pallavicini, which well shows some diverse features of Italian gardening. It is on one of those steep hills which overlook the sea; it occupies a considerable space, for the most part covered with the native Evergreen Oak, through which many shady walks are made. These wind up the woody slope, and open here and there into little glades, embellished in various ways. For the greater part of its space, it is not laid out in what is called the Italian style; though there are the usual, and, on such slopes as this, the necessary terraces near the house. After these, however, the shady woods, with their native Oaks and Pines, and numerous wild Ferns and streamlets, and their many different peeps at the blue sea beneath, are refreshing. There is much to admire, were it not for the introduction of puerilities that might, perhaps, be in place in a tea-garden or in a rollicking playground, but not in a true garden.

—an ancient cemetery, in fact. Some antique sarcophagi, perhaps? or, it may be, the tombs of the owner's ancestors? Nothing of the kind—it is all artificial! Presently an Egyptian obelisk is seen, reminding one of some of those at Rome, but on getting nearer we find it is of terracotta! After this we ought to be grateful that the trees, too, are not artificial. Happily, a little way off, by the streamlet, there are masses of Maiden-hair Fern; there are plenty of Camellias, and other flowers (greenhouse ones with us) to soften matters a little. Passing by these, we soon arrive at a stalactite cave of distressing gloom and dimensions, after wandering through which a boatman is discovered, who ferries us through another tortuous winding or two of the cave, and soon ushers us into the fall sun in a small lake, with marble statuary and fountain, and round its margin a pretty flower-garden. Even this, however, like much of the place, suffers from being too much "cut up" and frittered away by small



View in the Pallavicini Gardens, near Genoa.

Sundry grottoes met with are arranged so as to syringe the visitor with water in various ways; and, as he escapes by the only open path, other cleverly-arranged jets attack him at every point. Imagine such puerilities in a garden rich with plants, and which, if it only possessed those native to the spot, would be lovely! There are half-a-dozen different contrivances, in different spots, for squirting water in this manner! However, here is an experimental plantation of Palms, and the larger kinds of succulent plants, that have been planted in the open ground for some years, and which compensates us for this infantile fooling. Here we notice that *Agave Salmiana* is much more massive and stately in port than the common American *Agave*, fine as that is in Italy, *Cocos campestris*, *Corypha australis*, *Cycas revoluta*, *Dasyllirion* in variety, and many species of *Agave*; presently masses of our greenhouse *Azaleas* are seen in bloom; and soon we come to a knoll of Pines and Oaks, where the golden light has some difficulty in penetrating; and here are sarcophagi, a warrior's tomb, &c.,

temples and tortuosities of various kinds. A Camphor tree in this garden is very fine, almost as handsome as a Plane in the spread of its branches. There is also a fine Cork tree, said to be the finest in Italy, but it is not half the size of the trees at Caserta, near Naples, nor quite so good as a tree at Linton Park, in Kent. There is a very remarkable specimen of *Cycas revoluta* planted out for some years, with a clear stem of 4 ft. which shows that this plant will flourish in a cooler temperature than is generally supposed. The garden, notwithstanding the objectionable features spoken of, is one of the best in Italy—its best aspects, however, rather arising from the beauty of the position and the natural woods which occur in it, than from the gardening. There is a noble greenhouse shrub cultivated here, and in many Italian gardens, called *Enkyanthus quinqueflorus*, reminding one of *Kalmia latifolia*. It is abundantly grown in tubs for placing in the open air in summer, and flowers very handsomely in spring. It well deserves extensive culture for conservatory decoration.

THE PLANT-LORE OF SHAKESPEARE.

Apricots.

- (1) *Titania*. Be kind and courteous to this gentleman . . .
 . . . Feed him with Apricocks and Dewberries.
Midsummer Night's Dream, act iii., sc. 1.
- (2) *Gardener*. Go, bind thou up those dangling Apricocks,
 Which, like unruly children, make their sire
 Stoop with oppression of their prodigal weight.
Richard II., act iii., sc. 4.

SHAKESPEARE'S spelling of the word Apricocks takes us at once to its derivation. It is derived undoubtedly from the Latin *præcox* or *præcocus*, under which name it is referred to by Pliny and Martial; but, before it became the English Apricot it was much changed by Italians, Spaniards, French, and Arabians. The history of the name is very curious and interesting, but too long to give fully here; a very good account of it may be found in Miller and in "Notes and Queries," vol. ii., p. 420 (1853). It will be sufficient to say here that it acquired its name of "the precocious tree," because it flowered and fruited earlier than the Peach, as explained in Lyte's "Herbal," 1578:—"There be two kinds of Peaches, whereof the one kinde is late ripe . . . the other kinds are soner ripe, wherefore they be called Abrecox or Aprecox." Of its introduction into England we have no very certain account. It was certainly grown in England before Gerarde's time, but the only account of its introduction is by Hakluyt, who states that it was brought from Italy by one Wolfe, gardener to King Henry the Eighth. If that be its true history, Shakespeare was in error in putting it into the garden of the queen of Richard the Second, nearly a hundred years before its introduction.

Ash.

- Aufidius*. O let me twine
 Mine arms about that body, where against
 Mygrained Ash a thousand times hath broke.
Coriolanus, act iv., sc. 5.

Warwickshire is more celebrated for its Oaks and Elms than for its Ash trees. Yet, considering how common a tree the Ash is, and in what high estimation it was held by our ancestors, it is strange that it is only mentioned in this one passage. Spenser spoke of it as "the Ash for nothing ill;" it was "the husbandman's tree," from which he got the wood for his agricultural implements; and there was connected with it a great amount of mystic folk-lore, which was carried to its extreme limit in the Yggdrasil, or legendary Ash of Scandinavia, which was almost looked upon as the parent of creation: a full account of this may be found in Malet's "Northern Antiquities" and other works on Scandinavia. It is an English native tree, and it adds much to the beauty of any English landscape in which it is allowed to grow. But to see it in its full beauty it must be seen in our northern counties, though the finest in England is said to be at Woburn.

The Oak, the Ash, and the Ivy tree
 O, they flourish best at home, in the north countrie.

Old Ballad.

In the dales of Yorkshire it is especially beautiful, and any one who sees the fine old trees in Wharfedale and Wensleydale will confess that, though it may not have the rich luxuriance of the Oaks and Elms of the southern and midland counties, yet it has a grace and beauty that are all its own, so that we scarcely wonder that Gilpin called it "the Venus of the woods."

Aspen.

- (1) *Marcus*. O, had the monster seen these lily hands
 Tremble like Aspen leaves upon the lute?
Titus Andronicus, act ii., sc. 5.
- (2) *Hocless*. Feel, master, how I shake. . . . Yea, in very truth do I,
 an 'twere an Aspen leaf.
2nd Henry IV., act ii., sc. 4.

The Aspen or Aspe (*Populus tremula*) is one of our three native Poplars, and has ever been the emblem of enforced restlessness. How this perpetual motion in the "light quivering Aspen" is produced has not been quite satisfactorily explained; and the mediæval legend that it supplied the wood of the Cross and has never since ceased to tremble, is still told as a sufficient reason both in Scotland and England. Its grey bark and

leaves and its pleasant rustling sound make the tree acceptable in our hedgerows, but otherwise it is not a tree of much use. In Spenser's time it was considered "good for staves;" and before his time the tree must have been more valued than it is now, for in the reign of Henry V. an Act of Parliament was passed (4 Hen. V., c. 3) to prevent the consumption of Aspe otherwise than for the making of arrows, with a penalty of an Hundred Shillings if used for making pattens or clogs. This Act remained in force till the reign of James I., when it was repealed. In our own time the wood is valued for internal panelling of rooms, and it is used in the manufacture of gunpowder. Gerarde's use of the tree must not be omitted, though it is probably the rudest remark that even he ever wrote:—"In English Aspe and Aspen tree, and may also be called Tremble, after the French name, considering it is the matter whereof women's tongues were made (as the poets and some others report), which seldom cease wagging."

Balm, Balsam, or Balsamum.

- (1) *K. Richard*.
 Not all the water in the rough, rude sea
 Can wash the Balm from an anointed king.
Richard II., act iii., sc. 2.
- (2) *K. Richard*. With mine own tears I wash away my Balm.
Richard II., act ii., sc. 1.
- (3) *K. Henry*. 'Tis not the Balm, the sceptre, and the ball.
Henry V., act iv., sc. 1.
- (4) *K. Henry*.
 Thy place is filled, thy sceptre wrung from thee,
 Thy Balm washed off, wherewith thou wast anointed.
3rd Henry VI., act iii., sc. 1.
- (5) *K. Henry*. My pity hath been Balm to heal their wounds.
3rd Henry VI., act iv., sc. 8.
- (6) *Lady Anne*.
 I pour the helpless Balm of my poor eyes.
Richard III., act i., sc. 2.
- (7) *Troilus*. But saying thus, instead of oil and Balm,
 Thou lay'st in every gash that love hath made me
 The knife that made it.
Troilus and Cressida, act i., sc. 1.
- (8) *1st Senator*. We sent to thee, to give thy rages Balm.
Timon of Athens, act v., sc. 5.
- (9) *Fearne*.
 Balm of your age,
 Most best, most dearest.
King Lear, act i., sc. 1.
- (10) *K. Henry*. Let all the drops should bedew my hearse
 Be drops of Balm to sanctify thy head.
2nd Henry IV., act iv., sc. 8.
- (11) *Dromio of Syracuse*. Onr fraughtage, Sir,
 I have conveyed abroad, and I have brought
 The oil, the Balsamum, and aqua vitæ.
Comedy of Errors, act iv., sc. 1.
- (12) *Alcibiades*. Is this the Balsam that the usurping senate
 Pours into captains' wounds?
Timon of Athens, act v., sc. 5.
- (13) *Quickly*. The several chairs of order, look you, scour
 With juice of Balm and every precious flower.
Merry Wives, act v., sc. v.
- (14) *Cleopatra*. As sweet as Balm, as soft as air, as gentle.
Antony and Cleopatra, act v., sc. 2.

In all these passages, except the two last, the reference is to the Balm or Balsam which was imported from the East, and was highly valued for its curative properties. It is now known that it was the produce of several Gum-bearing trees, especially the *Pistacia lentiscus* and the *Balsamodendron gileadense*; and now, as then, the name is not strictly confined to the produce of any one plant. But in Nos. 10 and 11 the reference is no doubt to the Sweet Balm of the English gardens (*Melissa officinalis*), a plant highly prized for its medicinal qualities (now known to be of little value) by our ancestors, and still valued for its pleasant scent and its high value as a bee plant, which is shown by its old Greek and Latin names, *Melissa*, *Melissophyllum*, and *Apiastrum*. The Bastard Balm (*Melittis Melissophyllum*) is a handsome native plant, found sparingly in Devonshire, Hampshire, and a few other places, and is well worth growing wherever it can be induced to grow; but it is a very capricious plant, and is apparently not fond of garden cultivation. "Très jolie plante, mais d'une culture difficile (Vilmorin). It probably would thrive best in the shade, as it is found in copses.

Barley.

- (1) *Iris.* Ceres, thou bounteous lady, thy rich leas
Of Wheat, Rye, Barley, Vetches, Oats, and Peas.
Tempest, act iv., sc. 1.
- (2) *Constable.* Can sodden water
A drench for surveined jades, their Barley broth
Decort their cold blood to such valiant heat?
Henry V., act iii., sc. 5.

These two passages require little note. The Barley (*Hordeum vulgare*) of Shakespeare's time and our own is the same. We may note, however, that the Barley broth (2) of which the French constable spoke so contemptuously as the food of English soldiers was probably beer, which long before the time of Henry V. was so celebrated, that it gave its name to the plant, Barley being simply the Beer-plant, and in Shakespeare's time, "though strangers never heard of such a word or such a thing, by reason it is not everywhere made," yet "our London Beere-Brewers would scorne to learne to make beere of either French or Dutch" (Gerarde).

Bay Trees.

- (1) *Captain.*
'Tis thought the King is dead. We will not stay.
The Bay trees in our country are all withered.
Richard II., act ii., sc. 4.
- (2) *Patrol.* Marry, come up, my dish of chastity with Rosemary and Bays.
Pericles, act iv., sc. 6.

It is not easy to determine what tree is meant in these two passages. In the first there is little doubt that Shakespeare copied from some Italian source the superstition that the Bay trees in a country withered and died when any great calamity was approaching. We have no proof that such an idea ever prevailed in England. In the second passage reference is made to the decking of the chief dish at high feasts with garlands of flowers and evergreens. But the Bay tree had been too recently introduced from the south of Europe in Shakespeare's time to be so used, though the tree was known long before, for it is mentioned in the Anglo-Saxon vocabularies by the name of Beay-beam, that is, the Garland tree; but whether the Beay-beam meant our Bay tree is very uncertain. We are not much helped in the inquiry by the notice of the "flourishing green Bay tree" in the Psalms, for it seems very certain that the Bay tree there mentioned is either the Oleander or the Cedar, certainly not the *Laurus nobilis*. But in the present day no garden of shrubs can be considered complete without the Bay tree, both the common one and especially the Californian Bay (*Oreodaphne californica*), which, with its bright green lanceolate foliage and powerful aromatic scent (to some too pungent), deserves a place everywhere, and it is not so liable to be cut by the spring winds as the European Bay. Parkinson's high praise of the Bay tree (forty years after Shakespeare's death) is too long for insertion, but two short sentences may be quoted:—"The Bay leaves are of as necessary use as any other in the garden or orchard, for they serve both for pleasure and profit, both for ornament and for use, both for honest civil uses and for physic, yea, both for the sick and for the sound, both for the living and for the dead . . . so that from the cradle to the grave we have still use of it, we have still need of it." The Bay tree gives us a curious instance of the capriciousness of plant names. Though a true Laurel it does not bear the name, which yet is given to two trees, the common (and Portugal) Laurel, and the Laurustinus, neither of which are Laurels, the one being a Cherry or Plum (*Prunus* or *Cerasus*), the other a Guelder Rose (*Viburnum*).

Beans.

- (1) *Poor.* When I a fat and Bean-fed horse beguile.
Midsommer Night's Dream, act ii., sc. 1.
- (2) *Carrier.* Pease and Beans are as dank here as a dog; and that is the next way to give poor jades the bots.
1st Henry IV., act ii., sc. 1.

The Bean (*Faba vulgaris*), though an Eastern plant, was very early introduced into England as an article of food both for men and horses. It is not apparently a romantic plant, and yet there is no plant round which so much curious folklore has gathered. This may be seen at full length in Phillips' "History of Cultivated Vegetables." It will be enough here to say that the Bean was considered as a sacred

plant both by the Greeks and Romans, while by the Egyptian priests it was considered too unclean to be even looked upon; that it was used both for its convenient shape and for its sacred associations in all elections; that this custom lasted in England and in most European countries to a very recent date in the election of the kings and queens at Twelfth Night and other feasts; and that it was of great repute in all popular divinations and love charms. I find in Miller another use of Beans, which we are thankful to note among the obsolete uses:—"They are bought up in great quantities at Bristol for Guinea ships, as food for the negroes on their passage from Africa to the West Indies." As an ornamental garden plant the Bean has never received the attention it seems to deserve. A plant of Broad Beans grown singly is quite a stately plant, and the rich scent is an additional attraction to many, though to many others it is too strong, and it has a bad character—"Sleep in a Bean-field all night if you want to have awful dreams or go crazy," is a Leicestershire proverb: and the Scarlet Runner is one of the most beautiful climbers we have. In England we seldom grow it for ornament, but in France I have seen it used with excellent effect to cover a trellis-screen, mixed with the large blue *Convolvulus major*.

Bilberry.

- Pistol.* Where fires thou find'st unaked and hearths unswept,
There pinch the maids as blue as Bilberry—
Our radiant Queen hates sluts and sluttery.
Merry Wives, act v., sc. 5.

The Bilberry is a common British shrub found on all Mossy heaths, and very pretty both in flower and in fruit. Its older English name was Heathberry, and its botanical name is *Vaccinium Myrtillus*, and we have in Britain four species of *Vaccinium*, the Whortleberry or Bilberry (*V. Myrtillus*), the Large Bilberry (*V. uliginosum*), the Crowberry (*V. Vitis Idea*), and the Cranberry (*V. Oxycoccus*). These British species, as well as the North American species (of which there are several) are all beautiful little shrubs in cultivation, but they are very difficult to grow; they require a heathy soil, moisture, and partial shade.

Birch.

- Duke.* Fond fathers,
Having bound up the threatening twigs of Birch,
Only to stick it in their children's sight
For terror, not to use, in time the rod
Becomes more mocked than feared.
Measure for Measure, act i., sc. 1.

Shakespeare only mentions this one unpleasant use of the Birch tree, the manufacture of Birch rods; and for such it seems to have been chiefly valued in his day. "I have not red of any vertue it hath in physick," says Turner; "howbeit, it serreth for many good uses, and for none better than for betynge of stnborn boys, that either lye or will not learn." Yet the Birch is not without interest. The word "Birch" is the same as "bark," meaning first the rind of a tree and then a barque or boat (from which we also get our word "barge"), and so the very name carries us to those early times when the Birch was considered one of the most useful of trees, as it still is in most northern countries, where it grows at a higher degree of latitude than any other tree. Its bark was especially useful, being useful for cordage, and matting, and roofing, while the tree itself formed the early British canoes, as it still forms the canoes of the North American Indians, for which it is well suited, from its lightness and ease in working. We still admire its graceful beauty, whether it grows in our woods or our gardens, and we welcome its pleasant odour on our Russia-leather-bound books; but we have ceased to make beer from its young shoots, and, on the whole, we hold it in almost as low repute (from the utilitarian point of view) as Turner and Shakespeare seem to have held it.

Blackberries.

- (1) *Falstaff.* If reasons were as plenty as Blackberries
I would give no man a reason on compulsion.
1st Henry IV., act ii., sc. 4.
- (2) *Falstaff.* Shall the blessed sun of Heaven prove a nicher and eat Blackberries?
1st Henry IV., act ii., sc. 4.

- (3) *Thersites*. That same dog-fox Ulysses is not proved worth a Blackberry.
Troilus and Cressida, act v., sc. 1.
- (4) *Rosalind*. There is a man hangs odes upon Hawthorns, and elegies on Brambles.
As You Like It, act iii., sc. 2.
- (5) The thorny Brambles and embracing bushes,
As fearful of him, part, through whom he rushes.
Venus and Adonis.

I here join together the tree and the fruit, the Bramble and the Blackberry (*Rubus fruticosus*). There is not much to be said for a plant that is the proverbial type of a barren country or untidy cultivation, yet the Bramble and the Blackberry have their charms, and we could ill afford to lose them from our hedgerows. The name Bramble originally meant anything thorny, and Chaucer applied it to the Dog Rose,

“He was chaste and no lechour,
And sweet as is the Bramble flower
That bereth the red hepe.”

But in Shakespeare's time it was evidently confined to the Blackberry-bearing Bramble. There is a quaint legend of the origin of the plant which is worth repeating. It is thus pleasantly told by Waterton:—“The cormorant was once a wool merchant. He entered into partnership with the Bramble and the bat, and they freighted a large ship with wool; she was wrecked, and the firm became bankrupt. Since that disaster the bat skulks about till midnight to avoid his creditors, the cormorant is for ever diving into the deep to discover its foundered vessel, while the Bramble seizes hold of every passing sheep to make up his loss by stealing the wool.”

As a garden plant, the common Bramble had better be kept out of the garden, but there are double pink and white-blossomed varieties, and others with variegated leaves, that are handsome plants on rough rockwork. The little *Rubus saxatilis* is a small British Bramble that is pretty on rockwork, and among the foreign Brambles there are some that should on no account be omitted where ornamental shrubs are grown. Such are the *R. leucodermis* from Nepal, with its bright silvery bark and amber-coloured fruit; *R. nootkanus*, with very handsome foliage and pure white rose-like flowers, *R. arcticus*, an excellent rockwork plant from N. Europe, with very pleasant fruit, but difficult to establish, *R. australis*, a most quaint plant, apparently without any leaves, and hardy in the south of England; and *R. deliciosus*, a very handsome plant from the Rocky Mountains. There are several others well worth growing, but I mention these few to show that the Bramble is not altogether such a villanous and useless weed as it is proverbially supposed to be.

Box.

- Maria*. Get ye all three into the Box tree.
Twelfth Night, act ii., sc. 5.

The Box tree is a native British tree, and in the sixteenth century was probably much more abundant as a wild tree than it is now. There were also probably more woods of Box in England than the two which still remain at Box Hill, in Surrey, and Boxwell, in Gloucestershire. From its wild quarters the Box tree was very early brought into gardens, and was especially valued, not only for its rich evergreen colour, but because, with the Yew, it could be cut and tortured into all the ungainly shapes which so delighted our ancestors in Shakespeare's time, though one of the most illustrious of them, Lord Bacon, entered his protest against such barbarisms:—“I, for my part, do not like images cut out in Juniper or other garden stuff; they be for children.”—(“Essay of Gardens.”)

Briar.

- (1) *Ariel*. So I charmed their ears,
That calf-like they my lowing followed through
Toothed Briars, sharp Furzes, pricking Gorse and Thorns.
Tempest, act iv., sc. 1.
- (2) *Fairy*. Over hill, over dale,
Through bush, through Briar.
Midsommer Night's Dream, act ii., sc. 1.
- (3) *Thi-be*. Of colour like the red Rose or triumphant Briar.
Ibid, act iii., sc. 1.

- (4) *Puck*. I'll lead you about a round,
Through bog, through bush, through Brake, through Briar.
Ibid, act iii., sc. 1.
- (5) *Puck*. For Briars and thorns at their apparel snatch.
Ibid, act iii., sc. 2.
- (6) *Helena*. Never so weary, never so in woe,
Bedabbled with the dew and torn with Briars.
Ibid, act iii., sc. 2.
- (7) *Oberon*. Every elf and fairy sprite
Hop as light as bud from Briar.
Ibid, act v., sc. 2.
- (8) *Adriana*. If aught possess me from thee, it is dross,
Usurping Ivy, Briar, or idle Moss.
Comedy of Errors, act ii., sc. 2.
- (9) *Plantageant*. From off this Briar pluck off a Rose with me.
1st Henry VI., act ii., sc. 4.
- (10) *Rosalind*. O! how full of Briars is this working-day world!
As You Like It, act i., sc. 3.
- (11) *Helena*. The time will bring on summer,
When Briars shall have leaves as well as thorns,
And be as sweet as sharp.
All's Well, act iv., sc. 4.
- (12) *Polygenes*. I'll have thy beauty scratched with Briars.
Winter's Tale, act iv., sc. 3.
- (13) *Timon*. The Oaks bear masts, the Briars scarlet hips.
Timon of Athens, act iv., sc. 3.
- (14) *Coriolanus*. Scratches with Briars,
Scars to move laughter only.
Coriolanus, act iii., sc. 3.
- (15) *Quintus*. What hole is this,
Whose mouth is covered with rude-growing Briars?
Titus Andronicus, act ii., sc. 4.

In Shakespeare's time the “Briar” was not restricted to the Sweet Briar, as it usually is now; but it meant any sort of wild Rose, and even it would seem from No. 9 that it was applied to the cultivated Rose, for there the scene is laid in the Temple Gardens. In some of the passages it probably does not allude to any Rose, but simply to any wild thorny plant. That this was its then common use, we know from many examples. One is enough from “A Pleasant New Court Song,” in the Roxburghe Ballads:—

I step me close aside,
Under a Hawthorn Bryer.

It bears the same meaning in our Bibles, where “Thorns,” “Brambles,” and “Briars,” stand for any thorny and useless plant, the soil of Palestine being especially productive of thorny plants of many kinds. H. N. E.

Strelitzia Reginae.—This is one of the most accommodating and continuous-blooming plants which we possess. We have two large plants of it, and just now one has seventeen and the other nineteen flower-spikes in full bloom, and they have been nearly equally well supplied all through the winter, and are likely to continue so for some months to come. Throughout the summer and autumn months they bloom more or less. We winter them in the coolest portion of the Palm-house, where the temperature at night is usually from 43° to 45°, but 37° or 40° is enough for them. During the summer months we put them out-of-doors on the terrace in the full blaze of the sun, and give them water when dry just as we do our Palms and other terrace pot plants. Some of our neighbours, however, keep their *Strelitzias* in summer in company with *Azaleas* and some other greenhouse plants out-of-doors, but in comparative shade, and I must admit that the leaves of their plants look better than the leaves on ours, but we still retain the credit for having the greatest quantity of flowers.—W. FALCONER, *Cambridge, Massachusetts*.

Toreñas.—*T. Fournieri*, *T. intermedia*, and *T. Thorelleana* are all the same. The plants are found in the gardens of the Pagodas in Cochinchina, where I have seen them.—J. G.

Black Auts and Peach Flowers.—Mr. Pearson (see p. 226) asks if any one has noticed ants attacking *Azalea* flowers. I have not observed them attack that particular flower, but I have on several occasions known them to injure the blossoms of Peach and Nectarine trees. As they are not easily dislodged, when once established amongst the roots of plants or trees, without injury to the latter, some means of trapping them generally have to be resorted to. This is however a slow operation, but if persisted in, their number may be greatly reduced, if not entirely destroyed.—J. G., *Henham*.

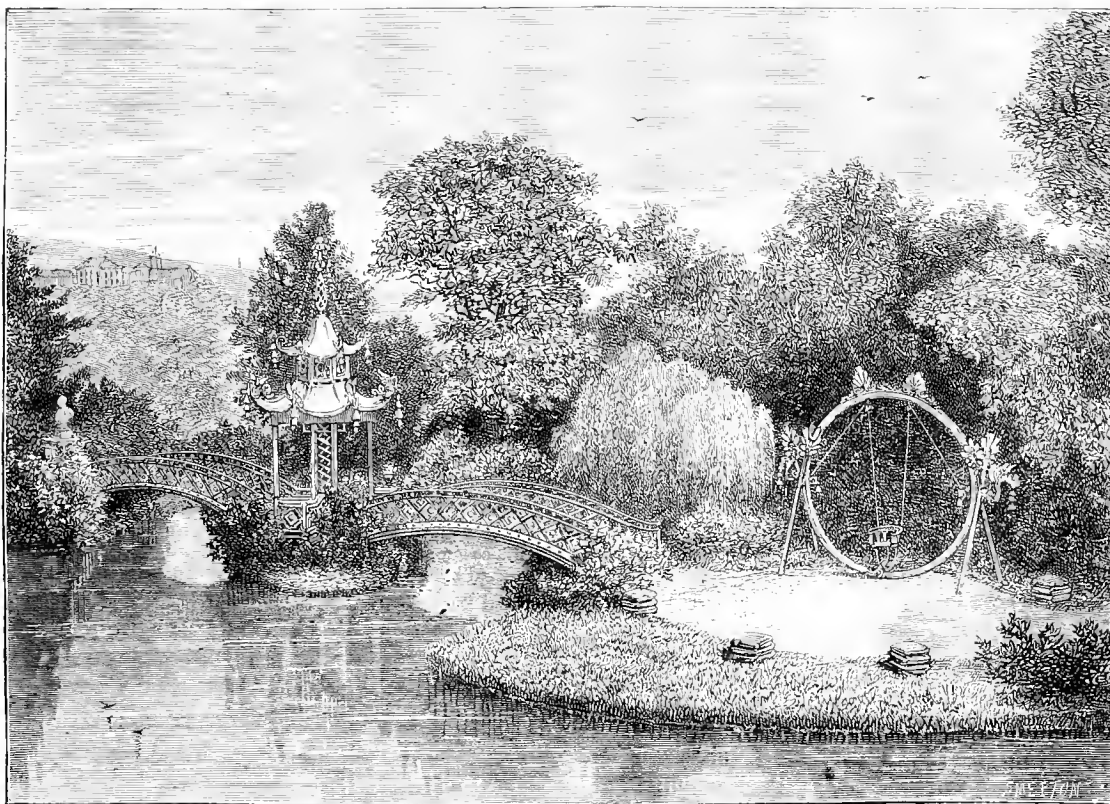
THE FRUIT GARDEN.

EXPERIMENTS IN VINE CULTURE.

SOME two years or so ago I promised to give some account of an experiment made with a house of Vines planted (if the term may be considered correct) without natural soil. It occurred to me that Grapes could be grown without soil, and I resolved to give such a method a trial in a small house 30 ft. by 12 ft. In August, 1873, immediately after gathering a crop of Black Hamburgs, the Vines, which for many years had been severely forced, were taken out. Immediately inside of the front wall I had the old soil removed down to the drainage for a width of 4 ft.; this was refilled with the freshest of last year's leaves and cow-manure pressed as firmly together as possible. The Vines were then planted, and a little soil was used to surround the balls; in November I added to the border 1 ft. outside and

thus prepared has produced fruit equal in every respect to what the house before produced, and to what houses of the same size are now producing where the borders have been prepared in the old way. The kinds planted were varied for the sake of experiment, and consisted of Dr. Hogg, Canon Hall Muscat, Barbarossa, Foster's Seedling, Black Hamburg, Duke of Buccleuch, Waltham Cross, and a seedling. There was nothing in the Vines or fruit that would lead one to suppose that they were growing in any other than an ordinary border. The Hamburgs were fine in colour and flavour, Canon Hall set like Hamburgs, and Waltham Cross had none of the small berries which it often produces from imperfect setting; this Grape was good, and well liked at the table in February at Lambton.

In the latter end of August, 1875, I planted another house of the same dimensions as the one just described, and with the view of retaining the turf as long as possible in a fresh



Another View in the Pallavicini Gardens (see p. 247).

4 ft. inside, made as before, when I found the roots in quite a promising condition. The material used was always in a fresh state, and this process was continued until last year, when the border was finished. I may add that top-dressing was oftener required than in the case of borders made with soil, as the border subsided more rapidly; the whole was covered with charcoal for the sake of appearance, no soil being used. After years of experience under the tuition of men famous in the Grape-growing world, I confess that the compost described appears to be a most unsatisfactory mixture in which to plant young Vines. The first part of the border made has become a light black soil without any adhesive texture, and is soft and spongy when trodden on. No doubt to some this experiment will appear very startling, more especially to those who condemn the practice of using manure in a raw state in the formation of a Vine border. But we are told that one fact is worth a thousand arguments. Now the fact is, this border

condition, it was not broken up, as is generally done when making a Vine border, but was put in the full size, 12 in. by 9 in.; commencing at the bottom and working upwards, I placed the turves as a mason would bricks in building, using cow-manure as mortar. As to the result of this arrangement, Mr. Westcott, of Raby, when looking over the gardens at Lambton, said, "Well, you have just gained a year on my young Vines," when only the year before I had congratulated him on their vigorous growth. I do not wish it to be understood that I prefer manure in which to grow Vines, or that I consider it better than other mixtures, but I believe it to be good along with them, and that no newly-made border is perfect without manure. Many ills are attributed to an over-rich border, such as mildew, gross growth, watery shoots, badly ripened wood, an abnormal amount of pith, shanking, badly coloured Grapes, and so forth; but when one ventures an experiment and finds that it puts all these aside, what then? There is much yet to be learned with reference to Vine culture, but when we are able to put our hands with more certainty

* Read at the Darlington Gardeners' Institute, March 15, by Mr. Hunter, Lambton Castle.

on the causes which produce the ills to which the Vine is heir, we shall become better able to remedy them. I am prepared myself (the more so after another year's experience) to say, that the growth of a Vine depends more upon the internal atmosphere, the amount of moisture it is charged with, and the light under which it is grown, than upon the richness of the border; it seems to me to be one of those plants which cannot be grown too fast or too strong. Some tell us that it is not from the strongest wood we get our finest fruit; that in some cases I grant, there being so many ways of growing and ripening the canes. A house may have every attention paid to it, it may be properly drained, looked through in the evening, and a temperature of 65°, 70°, or 75° rigidly maintained; yet if the Vines be encouraged to make their growth in darkness instead of daylight, the shoots will be watery, and there will be an abnormal amount of pith. From such management the stamina of the Vine is reduced until tendrils instead of bunches are the result. From the time when Vines commence to grow a little air should be considered of the greatest importance to them, and the quantity should be increased as the foliage becomes stouter and able to endure it. A given temperature sufficiently high for the well-being of the Vine can easily be maintained with a requisite quantity of air to prevent what we call watery shoots, if encouraged and grown in sufficient light by day. I hope some day to find instruments used as extensively to indicate the strength of light, as they now are to register the temperature correctly. Let me hope that these experiments may lead to some further researches in the same or some other direction that will be advantageous to Grape growers.

FIGS IN POTS.

I QUESTION whether there is any fruit tree grown that will maintain its fertility for such a lengthened period, or that will produce so much fruit from a given space, as the Fig. Restrict its roots either in pots or in brick pits, and its greatest amount of fertility will be ensured, for if allowed a free root-run in rich soil its energies are expended in producing gross, watery shoots and leaves, whereas, when starved into a fertile state, and furnished with short, hard, well-ripened shoots, fruit in abundance is the result. We have here at present, showing a capital crop of fruit, a quantity of Fig bushes that have probably occupied the same-sized pots for these last twenty years, and they are certainly more productive than young trees; in fact, I see no reason why a Fig tree might not do good service as a pot tree for a century. In selecting young Figs, the same rule should be followed as in the case of Gooseberry and Currant bushes, viz., those should be chosen which have single stems about 1 ft. high, and regular, well-balanced heads of branches should be formed by pinching out the points of the strong shoots as soon as they have attained the desired length; after the heads are well furnished with bearing wood, every shoot should be stopped at the third or fourth leaf, as the second crop under glass is usually more abundant than the first; and if well supplied with liquid manure, the trees will perfect both crops well, and likewise ripen off their young wood and an embryo crop for the first of the following year, but care should be taken not to excite growth before the trees have shed their foliage. As soon, however, as the fruit is ripe the trees should be kept as cool and airy as possible, and less root and atmospheric moisture supplied so as to ripen off the wood and induce a season of rest under as natural conditions as possible. I believe that the wood of pot Fig trees grown in this manner would stand without injury a degree of cold that would prove fatal to the soft, watery shoots that are frequently found on trees out-of-doors. Pot Fig trees are, however, always safest under some kind of protection, and as light is not absolutely necessary for them during the resting period, they may be set in any dark shed, and the Fig-house may be more advantageously employed up to the season when it is thought most desirable to re-introduce the Figs for the season's work, which must of course be regulated by the time at which the produce is most required. Figs will not only bear, but are greatly improved by a high temperature and plenty of moisture, the two chief elements in forcing, but along with them the plants should have all the light which it is possible to give them in our dull climate, for if grown under Vines or other kind of shade, only secondary results must be expected. As regards soil, I find nothing better than turfy loam and old mortar rubbish rammed hard into the pots, room being left for watering, which is one of the chief items in Fig culture, for when loaded with fruit and foliage, the amount of

moisture which a large Fig bush will require on a bright day is astonishing, and if allowed to get dry enough for the foliage to flag, the loss of the crop will probably be the result. J. G.

APPLE CROPS AND SPRING FROSTS.

THE failure of this, the most important of our fruit crops, last year was perhaps the most complete that has occurred during the last twenty years, for in former notoriously bad fruit seasons, in some favoured localities there were abundant crops; but the crop of 1876 was an utter failure all over the kingdom as regards large standard trees that supply our markets, and the main supply furnished by our gardens was derived from dwarf bush trees and espaliers. Here we had a good crop on espaliers in our walled kitchen garden, while on large orchard trees there was no fruit. It has become such an established custom to attribute fruit crop losses to spring frosts, that no other explanation of our failures in this respect is sought for, and the idea that the calamity is beyond our control prevents any efforts being made to check or alleviate it; yet minor details, if carefully worked out, might eventually considerably diminish, if not altogether overcome, the difficulty. There are a few points on which I cannot but think doubts ought to exist as to the losses of our Apple crops being wholly occasioned by spring frosts:—(1) How is it that Apples which flower considerably later than Pears, Plums, or Cherries, are oftener injured from some cause or other than either of the two kinds of fruits just named? (2) How is it that our surest-bearing Apples are nearly all early kinds, such as Keswick Codlin, Hawthornden, Cellini, and Lord Suffield, while some of the latest, as, for instance, Court Pendu Plat, that is not in flower until quite the end of May, is nevertheless not a certain cropper? (3) Why should dwarf trees and espaliers bear a crop when standards are almost, or quite bare, as the difference in temperature in which the two trees exist must be very slight; while, as regards protection, the lower branches of standards would be in a better position than either if the effects of spring frosts had only to be guarded against, as we often get a few Gooseberries destroyed on the topmost branches, while the fruit on the lower part of the tree is safe? My impression is that the blossoms of the Apple are seldom frozen sufficiently to destroy their vitality, but that cold winds and sudden changes of temperature occurring just at a critical stage of flowering, cause a certain amount of paralysis, so to speak, to be experienced by the whole tree, and as a result the blossoms drop, certain varieties being more affected than others. There can be no doubt that the Apple is the most important of all our fruit crops, and yet, as regards any certainty of supply, we are apparently more at the mercy of the elements than in the case of more tender fruits. The subject is well worth attention, and by a comparison of notes from sheltered and exposed situations, something like a certainty of supply might eventually be arrived at.

Henham.

J. Groom.

INSIDE v. OUTSIDE VINE BORDERS.

OF all that relates to Vine culture the making of the border forms the most important part. Errors concerning general treatment may be rectified; Vineries may be altered and modified with comparative ease, but if the conditions under which the root is placed be unfavourable, all the care and skill expended in other respects will be labour in vain. Grape-growing may be roughly divided into three heads, viz., early, mid-season, and late. Early Grapes, that is, those which ripen before the sun has power to raise the temperature of the soil, should have an inside border. Good early Grapes can be, and doubtless are, obtained from Vines which have their roots outside, but this can only be done at the expense of a considerable amount of extra labour, and merely serves to show what skill and care may achieve. As Mr. Grieve observes (p. 197), when two methods ensure the same success, it behoves us to choose that which is easiest to carry out. In the case of mid-season Grapes (those ripening during the summer months) little, if any, advantage would be gained by confining any portion of the roots to the interior of the house. During the swelling and ripening processes, which extend over the hottest and driest portion of the year, a thoroughly good root-run in congenial soil, combined with means of supplying abundance of water, is required, and that is best secured out-of-doors. With respect to late Grapes, that is, those that are not cut before January, the case is altogether different; they have to be kept some months after they are ripe. Having only the growth of the Vines in view, I should myself prefer outside borders for all Grapes which ripen during summer and early autumn, inasmuch as the roots are not only in a position to be benefited by the summer temperature, but they also get the benefit of whatever rainfall there may be. The question, how-

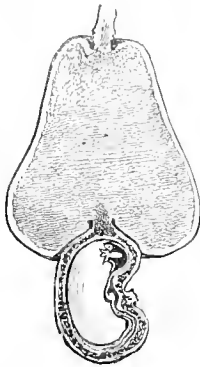
ever, is, whether Grapes can be easily, and with any degree of certainty, kept upon Vines, the roots of which are entirely outside, and whether greater success is not as a rule attainable where the borders are inside; and if so, whether the difference is great enough to overbalance other drawbacks, such as a more restricted root-run, extra labour in watering, &c. I merely put these questions. I do not attempt to answer them, not being in possession of sufficient data to be enabled to do so, but there are many probably who have had experience enough in this matter to warrant their expressing a decided opinion in reference to them. A comparison of notes and experience in regard to this subject would prove, I have no doubt, of great interest to many.

JOHN CORNHILL.

Byjlect.

THE CASHEW NUT.

I WAS much interested in the account which you gave of this Nut (see p. 211), having often eaten it roasted in the West Indian Islands; I have also purchased Cashew Nuts several times in the streets of London. The way in which these Kidney Bean-like Nuts are set on the end of the fleshy, Pear-shaped receptacle to which they are attached is always to me a matter of interest, and one which I have never been able to solve to my satisfaction, although we have an



Section of the Cashew Nut.

analogous arrangement in the Australian Cherries, the stones of which are nearly always on the outside of the pulp, which grows in a lump by the side of them. The common Strawberry, too, is another example of dry fruits being placed outside a fleshy receptacle, an arrangement the utility of which it is difficult to guess. J. E. S.

Early Melons.—Several growers have kindly favoured me with seeds of their early Melons, all of which I have sown and intend to test, and those that seem to indicate that they possess the qualities of fruiting in the shortest time from the sowing of the seed, and are fairly good in quality, shall be noticed in due time. With a careful and discriminating selection it would doubtless be possible to classify Melons into three sections, viz., early, midseason, and late, with as little trouble and as much certainty as is done in the case of Peas. This would be of great service to cultivators, for Melons are often in demand at certain seasons for shooting and other parties, and a mistake in the time of ripening the crop is often most vexatious, and is far worse than a similar mishap with Pine-apples or Grapes, for these will keep sound and good for a long time after they are ripe. Melons, too, will keep for a longer period without deterioration than is generally supposed, if cut just before they are ripe, wrapped round with several thicknesses of tissue-paper or thin sheets of cotton wool, and placed in a dry atmosphere at a temperature ranging from 50° to 55°; still of course they are a quickly perishable fruit, and ought to be used exactly at the right time, for if eaten too soon they are worthless, and if too late, they eat stale, and with an incipient flavour of decomposition that is altogether unpleasant. For both the earliest and latest varieties pot culture will be found the safest and fastest. The bottom-heat can be easily renewed around the pots, and thereby the roots can be kept at a uniform temperature, which is a great feature in the rapid growth and early maturity of Melons. Perhaps some of the numerous correspondents of THE GARDEN will favour its readers with the names of their early, midseason, and late Melons.—D. T. FISH.

American Apples.—About 250,000 barrels of Apples raised in America last year were shipped to Europe. More than half went to England, and 11,000 were taken to St. Petersburg.

BOG PLANTS AND UNDERGROUND TANKS.

I HAVE great pleasure in giving details of the underground tank (alluded to at page 121) for growing bog plants, but it must be remembered that my gardening experience is of a very youthful and experimental kind. Probably I shall not be able for several seasons to give perfectly satisfactory information about this mode of growing plants that require a large amount of moisture at their roots. Imagine a border about 50 yards long and 2½ yards wide, down the centre of which, about 1 in. under the surface, is laid a line of 4-in. clay pipes; each pipe is laid on a brick in a bed of mortar, and the joints are perhaps an eighth of an inch apart. The pipe does not appear aboveground, and the whole is on a slight slope. At the highest end of the border I have a large tank holding about 350 gallons of water; the border pipe runs into the tank, and has a valve which can be easily opened. A hand-spring well and pump fill the tank; the water is very hard when first pumped up, but after remaining a few hours in the sun it becomes soft and warm (on the hot days last July the water in the tank was at 77°), and I then pull up the valve. In about two minutes the whole of the 350 gallons have disappeared down the pipe, the water rushing along leaks out at each joint. I plant along the border and near the pipe such plants as want a moderate amount of water at their root, and if they need still more I put a few ashes close to the pipe joint, and plant their roots as close to the joint as I can. Many people come into this garden with nothing particular to do (a state of existence from which I have never suffered); I dare not set them to work with water-pots, as in giving relief to *Spiraea venusta*, they might step on *Dianthus Hentrianus*. Moreover, I find there are several herbaceous plants that will not stand being watered when the ground is hot and dry. Such well-meaning people are very well in their way, but I do not feel happy if they even press the ground with their feet; any one, however, can pump, and they may do so here to their heart's content. Indeed, I am thinking of being cicerone only to those who help to fill my tank. When the water is warm and well aired, I come fresh from my painting maybe, armed with a hook, and pull up the valve. Down goes the water with a rush, and in a few minutes I have done more for the plants and my own happiness than in an hour's work of the old fashion. Moreover, there is no stiff back, no wet clothes, no lost temper, no plant crushed. It is all very well for people who have lots of time and nothing to do in life to wheel about tubs and carry water-pots, but for a young painter just beginning to feel the value of every moment of daylight, a contrivance of this sort is very easing to the conscience. Whilst I am talking of this tank, I may as well give a few details about it, as I believe wooden tanks are not in common use, and it answers our purpose perfectly. It is all of 1½-in. deal, 22 in. deep, 3 ft. wide, and 11 ft. long. The sides are of two 11-in. planks, tongued and grooved, and sectionally bolted together. We opened the joints all over the tank with a blunt chisel, and caulked them with oakum, exactly like a boat's side; then the whole inside had a good coating of pitch with a little grease in it, and the outside was painted chocolate. It was some time before we got it quite water-tight, but it is all right now, and as long it is kept full I do not think it will leak. The valve at the bottom immediately over the border pipe is of sheet iron, with a rubber ring on the lower side, and this fits on to another rubber ring; the weight of the water not being sufficient to keep it quite water-tight, I put a weight on it and this answers the purpose. There is a strap of iron across the centre of the tank to prevent sagging. I have not yet come to the underground tank; it is really very difficult to describe, but if any readers of THE GARDEN happen to be in this neighbourhood during the summer I should be delighted to show them the results of my endeavours to grow plants that I cannot properly attend to when I am in my other home at Salisbury Street, Strand. The real and proper way to grow Lady's-slippers, Vernal Gentians, and other bog plants, would be to have them in immediate contact with running water, but I believe these plants may be grown in the hottest and driest garden, provided some provision is made for keeping the rainfall from passing away through the soil. I have several underground tanks considerably varying in size, but the description of one will suffice for all. During

the heat of last summer I took out the soil of my border 18 in. deep, about 10 ft. long by 4 ft. wide; the sides of the hole were dug slightly sloping. A compound of gravel and good lime well sieved and mixed together with water was laid about 4 in. thick all over the bottom and sides, and in a few days, when it was quite hard, we put over the surface of the concrete a slight coating of diamond cement. As soon as this was quite hard we had a tank capable of holding water, but instead of water we filled it up with peat and leaf-soil, putting some cinders for drainage at the bottom. When filled up level with the rest of the border there was no appearance of the underground tank, and the whole looks level and neat. Whatever falls in the shape of rain remains at the bottom till it has evaporated; no roots from surrounding trees or shrubs can penetrate the concrete. People come and see my Lady's-slippers growing vigorously, and think Nottinghamshire must be a very wet county, or that the soil is very suitable for Lady's-slippers. Close by one of these tanks, full of Trolliuses, Marsh Marigolds, and Lady's-slippers, I have a little cluster of Californian bulbs, which require exactly the opposite treatment, as these bulbs require to be kept as dry as possible. Without a tank I do not see how one could grow Lady's-slippers and Californian Tulips next to each other on the same border. I have not had full experience of herbaceous Phloxes under this wet treatment, but the finest Phloxes I ever saw were growing close to a railway cutting within 6 in. of stagnant water. In another large tank about 4½ ft. wide and 20 yards long, and into which my border pipe leaks freely, I have planted quantities of the very finest Phloxes and Irises; the tank is filled with leaf and turf soil, and I believe my Spiræas and Irises will flower grandly.

FRANK MILES.

Bingham.

Plants in the Island of Capri.—A relative of mine has been residing, for the benefit of her daughter's health, during the past winter in the Island of Capri opposite Naples—and judging from the plants mentioned in her letters, that part of Europe seems to me to be a botanist's paradise—at least in winter and spring. The following are a few extracts from her letters. December 17:—My nosegay gathered in my last walk consisted of Maiden-hair Fern, Myrtle in full bloom, Jonquils, Narcissus, Arbutus with berries as large as our biggest Strawberries, and an evergreen creeper, (a leaf of which I enclose) which covers the rocks everywhere, at present covered with berries in most graceful bunches, like miniature purple Grapes; also a broader-leaved variety, which has pretty transparent red berries. [This is plainly *Smilax aspera*; I have had it in good health in my greenhouse for many years, but it has never flowered.—J. G.] The little silvery leaf enclosed belongs to a *Convolvulus*, and bears a beautiful flower in spring. That great Cactus with leaves like a battle-dore grows abundantly here. They call it the African Fig. They cut it down and dry it for fuel. The fruit is peeled before being sent to table, and the orange coloured juice is very cool and refreshing.—March 10—I have found three Orchises, the Spider, the Bee, and O. Morio. A *Cistus* is now in flower which is just like a Brier Rose bloom set on a Sage bush: there is both a pink and a white one. It is the *Cistus salviflora*; it would be a charming plant for a mixed border. One little wood is quite carpeted with a purple *Crocus*, viz., *C. Imperati*, and the spring *Cyclamens* and numerous varieties of *Violets* are now out. The little Fern which I enclose is coming up in patches on the walls. The crisp leaf of the barren frond looks a little like the Parsley Fern, and the fertile frond is much like that of the true Maiden-hair. I gathered some with a little round scattered sori upon the leaves.—In a letter dated December last, mention is made of meeting with immense patches of *Lithospermum* in full bloom, and many other interesting plants. In a letter dated March 4 it is said people who have lived here for ten years never saw such a severe winter. I yesterday saw ice 1 in. thick.—JACKSON GILLIBANKS, *Whitefield, Cumberland*.

Dandelions as Salad.—Dandelions are eagerly sought after at this season of the year by foreigners, especially French and Germans. On fine days I have observed them with a basket and knife searching Grass plots and banks for them, and carrying them home for salad. How is it that we English people do not do the same thing? Is it a question of taste, or is prejudice against anything common stronger in Britons than any other nation? "What's in a name?" it has been said; but under the name of "weeds" are frequently classed plants of more general utility than those we import at great expense and cultivate with assiduous care.—JAMES GROOM, *Henham*.

PLATE LXVII.

THE MOCCASSIN FLOWER.

(*CYPRIPEDIUM SPECTABILE* *).

Drawn by Mrs. DUFFIELD.

This plant is undoubtedly one of the most beautiful among hardy North American Lady's Slippers, and at the same time it is one of the most manageable from a cultivator's point of view; indeed, as regards beauty of form and delicate colouring, it is second to no other Orchid in the group to which it belongs, albeit that the genus itself is a large one, embracing some forty or fifty species, scattered in the nearly tropical, intertropical, and temperate climates of the world. *C. spectabile* was introduced to Kew about 1770 from North America, where it naturally luxuriates in woods, moist meadows, and also peaty bogs in the Northern States. Good native specimens produce from fifty to seventy flowers on a single tuft a yard across, formed on a thick, mat-like mass of fleshy roots, from which shoot up from twenty to thirty or more stout, erect, leafy stems nearly a yard in height. The plant is perfectly hardy in this country; plants, indeed, even which had been forced in pots have survived the winter although fully exposed, and have flowered the following season. It succeeds perfectly if planted out in a deep, rich, peaty soil, and if a few nodules of sandstone or rough sandstone grit be mixed with the soil, so much the better. We have also seen this Lady's Slipper thrive well in turfy loam on a moist, peaty bottom; in either case, however, deep planting is necessary, as the roots are then cool and moist during the hot summer weather, and they do not suffer from frost in the winter. In Messrs. Backhouse's nurseries at York, where this plant is well established, it forms stout tufts of stems, each of which is terminated by two or three great snow-white, rosy-lipped flowers about June or July. The plants here succeed in a deep bed of peaty compost, and have a western aspect, being so planted as to secure shade from the midday sun. This Orchid, having been quite recently largely imported, is consequently much more plentiful than formerly, but as it is one of those plants which none but a real lover of hardy flowers can grow in a thoroughly permanent and satisfactory manner, it is never likely to become a common plant. One interesting fact connected with this charming Orchid is that it may be forced as easily as a Tulip, by potting it in peat, and placing it in heat in January or February, removing it to the conservatory just as it comes into bloom; of course a succession may be kept up thereafter. Mr. Sturtevant (who has introduced quantities of this plant from America) and Mr. Bull have forced successfully plants of it started in heat in February and flowered early in April; and now that large quantities of its roots are easily imported, it will doubtless prove a valuable addition to our early, blooming indoor flowers. The forced plants, if allowed to die down gradually in frames or pits, may be planted out permanently in beds or borders in sheltered and partially shaded situations, where they will establish themselves and eventually flower well. The annexed illustration was prepared by Mrs. Duffield from a highly coloured variety, grown by Mr. G. F. Wilson, of Heatherbank, Weybridge Heath, who has been very successful in its culture, as well as in that of many other equally valuable hardy plants. A full descriptive account of all the *Cypripediums*—hardy as well as tender—will be found in *THE GARDEN* (1874), Vol. IV., pp. 43, 67.

B.

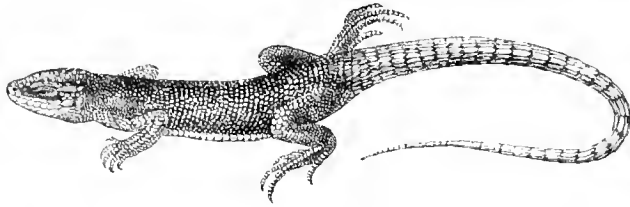
* *CYPRIPEDIUM SPECTABILE* (Swartz).—A hardy, herbaceous plant. Roots thick and fleshy, forming mat-like masses 1 ft. or more in diameter; stems erect, leafy, slightly fluted, and covered with soft white hairs attaining a height of from 1 ft. to 3 ft. Leaves (three to eight on a stem) 4 ft. 6 in. in length, 2 ft. 3 in. broad, sessile, broadly lanceolate in form, having numerous longitudinal nerves which give the foliage a plaited appearance; colour, bright green, sparsely covered with soft white hairs. Flowers terminal (two to three); sepals, oblong or ovate, 1 in. to 1½ in. in length, white, suffused with pale green at their apices; petals, linear, oblong or strap-shaped, pure white in colour, 1½ in. to 2 in. in length. Lip rounded, inflated, 1 in. or more broad; colour, creamy white, suffused in front with bright rose. Staminode, tongue-shaped, yellowish, spotted with crimson. Column, white. Anther cases yellow.—[Synonyms: *C. album*, Aiton; *C. Calceolus*, Linn. in part; *C. canadense*, Michaux; *C. hirsutum*, Miller; and *C. Roginae*, Walt. See also Linn. Trans. 1. p. 3. Bot. Reg., vol. xx., t. 1666. Sweet, Fl. Gard., 240. Wooster's Alpine Plants, vol. 1. pl. 6.]



MCCASKEY FLOWER. CYPRIPEDIUM SPECTABILE. E

GARDENERS' FRIENDS.

THESE are often in ignorance confounded with gardeners' foes, and treated accordingly. The one now about to be noticed is the nimble little lizard (*Zootoca vivipara*). This is generally regarded with aversion, not only by common people, but also by some who should know better, under the idea that it is venomous and next door to a snake. It is, however, a most harmless and timid little creature, graceful and elegant in its motions, and especially to be cherished by cultivators on account of the quantity of insects which it devours. These are its food, and the kind which it specially prefers are flies,

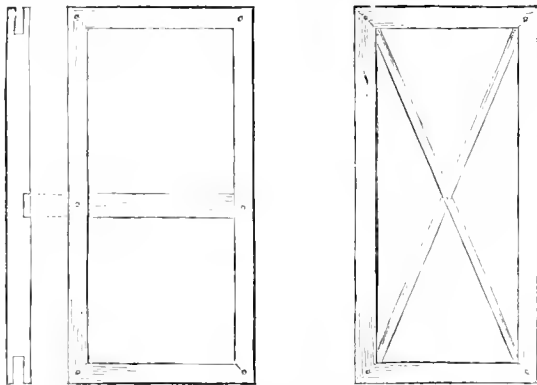


The Garden Lizard (*Zootoca vivipara*).

the different kinds of which do an infinity of damage in gardens, and are less easily caught in the perfect state than most other insects. It may be seen lying motionless basking in the sun until an insect comes within its reach, when it turns round with remarkable speed and snaps it up in a moment. It has sharp little teeth, which, however, are more useful for seizing its prey than rending it. It is common on most of our heaths and banks in England, but less so in Scotland, and it is also found in Ireland. It is said not to be common on the Continent. Unlike other lizards, this species is viviparous. A. M.

FRAME COVERINGS.

IN addition to what has already been stated in reference to these, will you allow me to contribute my idea about them for "South Italy's" information (see p. 14)? Let us take frames made of 1-in. thick and 2-in. broad deal board, and have them made immovable in themselves by nailing or inserting a board crosswise. After this, one side must be covered by some rough material nailed on the frame; the cheapest canvas, even worn Coffee bags, might do, nay, even Russia mats if not torn. This done, that material must be coated



inside and outside with thick oil paint; inside once will do; outside perhaps, according to the roughness of the material, three or four times will be necessary. The side exposed to the weather must be painted until the surface is entirely coated. Such frames are light, will last for years, and will be cheap. Of course every five years a fresh painting will be necessary, and if not in use they must be stored away in a dry place. Any handy labourer can make them, or an amateur may amuse himself with their manufacture.

Baden Baden.

MAX LEICHTLIN.

Trees on which Mistletoe Grows.—I have seen Mistletoe growing on a tree belonging to the Service family, called by the Italians *sorbo*, at La Cava, between Naples and Salerno, and I think I have also observed it on a Cherry tree in the vicinity of the town of Naples, and on Poplars between Rome and Naples.—CRAE.

— Mistletoe may be seen growing in the park here, and also in the open forest, on the White Thorns, that grow in hundreds; it may also be found on the Lime and Apple, but only once have I seen it on the Chestnut. Those on the Thorns are always the best, and produce the largest quantity of berries. Although old Oaks surround us, I have never seen Mistletoe on any of them. —A. HENDERSON, *Thoresby, Notts.*

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Indoor Plants.—Hard-wooded greenhouse plants of all descriptions, except Azaleas, which are better moved later on, should immediately be potted. It is a very great mistake to defer this operation (as is frequently recommended) until further on in the season, as then the greater amount of solar heat necessitates air being given to an extent that the plants cannot well bear for two or three weeks after potting, the ill effects of which are further aggravated by the then drier condition of the atmosphere. Another great advantage in early potting plants of this description is that whilst the weather is cool they do not require water being given so soon after; this also is a most important matter, as the more time that elapses before it is necessary to moisten the soil, the less chance is there of the roots suffering thereby, for despite the greatest care, there is always some mutilation in re-potting which renders them highly impatient of moisture. In all cases, see that the ball of every plant which has to be moved is thoroughly moistened beforehand; this should be attended to the day previous to potting, so as to give time for the water to drain off. Do not further disturb the roots than by the removal of the drainage crocks from the bottom of each ball; ram the new soil with the potting-stick until it is as close and solid as the ball of the plant, otherwise, when water is given afterwards, it will pass off through the new material, leaving the roots so dry that death or an unhealthy condition is sure to follow. In potting plants, amateurs very often fall into the error of placing them too high in the pots, the effects of which are more injurious upon hard than soft wooded subjects, the result to all being that there is a difficulty in watering, through insufficient space between the surface of the soil and the rim of the pot. All plants, large and small, should be placed sufficiently low in the pot for it to hold enough water at one application to moisten the soil, as where the watering of a plant has to be done by degrees in two or three applications (should this be omitted) the surface alone gets moistened. Some seed of *Celosia pyramidalis* should now be sown; it is well to sow it twice or thrice at intervals through the spring, by which means this useful decorative plant can be had in flower from the latter end of summer to the close of the year. Some Balsams, Cockscombs, (Globe Amaranthus, and Petunias, should also now be put in; sow in shallow pans sufficiently drained in fine sifted soil, made light and open by the addition of leaf-mould, also sifted, and a good sprinkling of sand; it is necessary thus to make the soil light in which to sow all such seeds as the above, for if this precaution be not taken when the seedlings are moved to separate pots, a considerable portion of their roots are sure to be broken, which seriously injures the plants. Fill the pans with soil, press down moderately firm with the bottom of an empty flower-pot so as to make it quite smooth, then sow the seeds and just cover with about an eighth of an inch of the finest of the soil. See that before using the soil it is neither too wet nor too dry—if the former, it will rot the seed; if the latter, it necessitates watering before germination takes place, which in the case of tender seeds should be avoided if possible. After they are covered thinly as above described, again press the surface in order to make it a little firm, which will have the effect of preventing the soil getting too dry before the plants are up. The pans should be placed in a stove, Vinery, heated pit, or hotbed, and the temperature at about 60°; if too cold, the seeds will perish. The sun should not shine directly on the top of the soil until the young plants have made their appearance, or it will dry the surface so as to require water being given sooner than it ought to be. Immediately these are through the soil, they must be placed where they will get plenty of light, and have air given, according to the state of the weather, in sufficient quantity to keep the plants stout and short, for if any plant of the above character that has to be grown in pots be ever allowed to become drawn, it renders them all but worthless. Helichrysums, French and African Marigolds, Phlox Drummondii, Portulacas, Tropæolums, and *Zionia elegans* (especially the double forms of this latter plant) are most beautiful, and deserving of a place in every garden. They should now be sown in pans or small boxes in soil similar to that recommended for the more tender annuals, but these, being more hardy, do not require so much warmth to induce them to vegetate; an ordinary greenhouse temperature will suit them. *Tropæolum canariense*, where required for running over low fences, walls, or ornamental archways, should be sown three or four seeds each in 4-in. pots, and, if they require it, give them a shift before the time for planting out, which will be towards the end of May. It is advisable to get the plants of this annual large and strong by sowing in this manner now, for although it will succeed well sown in the open ground later on, yet those sown in pots produce an effect much earlier in the season. Some more Stock and Aster seed should also now be put in, sowing some of the Stock seeds in small pots, as in

this way the plants, when newly vegetated, are less liable to damp than in pans; the Asters may be similarly sown in small pots, or in pans or boxes. Where Mignonette is required before it can be obtained from the open ground, ten or a dozen seeds may be sown in each 6-in. pot.

Herb Plantations.—Herbs in many gardens frequently do not receive the attention which they require; they are often found thrust in some out-of-the-way corner, where they become almost wholly neglected; from this cause their produce is but small, and their appearance very untidy; Mint especially, if it be allowed to occupy the same ground too long, exhausts the soil, which generally gets foul with weeds. Now is a good time to make a fresh plantation of Herbs; fork up the underground creeping roots, prepare a piece of ground in size proportionate to the supply required by digging and putting in a fair amount of manure, forming it into a bed about 1 ft. or 5 ft. wide; then take an inch or two of the soil off the top, lay on the roots not too thickly, and cover them with the soil that was removed, leaving the surface tolerably smooth. Growth will soon commence, but the produce will not be so soon ready as from an established bed, consequently it will be well to leave a portion of the old plantation undisturbed until that from the new is ready for use. Camomile, Pennyroyal, and similar Herbs, where required, should be planted in similar beds prepared in like manner, putting in rows 1 ft. apart small pieces divided from the old plants. Sage is best grown from cuttings struck in the latter part of summer, when they root freely; such as were struck at that time can now be planted in rows in a bed where they are to remain permanently, as also Borage and Fenel; the latter, from its taller growth, must have considerably more space allotted to it. The principal thing necessary with the above and any other Herbs that may be required is to keep the ground clear from weeds, and not to allow them to grow too long in one place. Chives.—Where these are held in estimation they may be fast increased by taking up and dividing the root clumps, replanting in thin rows. The planting of all the above should not be delayed, otherwise the season's growth is much interfered with through their not getting established in their new quarters before dry weather sets in.

Rhubarb.—This crop, from the great weight of its produce, quickly exhausts the soil; neither is it desirable to let it stand too long without removal, as plants that have been for some time undisturbed have a greater disposition to produce flowering shoots, which, even if cut out as soon as they make their appearance, interfere with the growth of the edible stalks; but it is not a good plan to disturb the whole plantation at once, as this stops the supply for a time. If some of the outside crowns be severed from strong established stools with a portion of root each, and planted now two or three together, and allowed to attain a maximum of strength, not gathering from them this summer, they will bear strong stalks next spring; or roots that have been forced through the winter planted now and permitted to regain strength through the summer, will succeed. As Rhubarb is a deep-rooting, gross-feeding plant, in all cases it should have rich deep soil, and if it be of a heavy, retentive nature some old exhausted tan, leaf-mould, wood ashes, or sandy road-drift, if such can be procured all mixed together, with 6 in. or 8 in. of good rotten manure, should be mixed with it, trenching the ground 2 ft. or 2½ ft. deep, planting 6 ft. apart each way. A crop of Radishes, Spinach, or Lettuce may be had off the ground betwixt the rows before the Rhubarb makes sufficient growth to interfere with them. Existing beds of Rhubarb will be much benefited by heavy drenchings with strong manure-water during the next two months.

Globe Artichokes should now have attention, removing the soil and stable litter or decayed leaves that were put round them in the autumn. Strong, established plantations produce a great deal more shoots than they can sustain, which, if allowed to remain, tend to weaken and interfere with the production of heads; four or five shoots are enough to remain on each plant, even when strong; remove all the weak suckers, retaining about the above number of the strongest; but in taking these off see that they come right out from the base, for if the leaves be merely pulled off, they will grow again directly. Where a supply of this vegetable is required as late in the season as it will grow, it is necessary about this time of each year to plant some suckers in numbers proportionate to the demand; some of the strongest of the above taken off with root fibres, planting three or four together in clumps about 1 ft. apart, are the best for this purpose, as if well attended to, they will bear good heads towards the end of August. Have the ground well prepared by digging and liberal manuring, and plant immediately, not allowing the suckers to flag; give water afterwards, and protect from the sun and drying winds with inverted flower-pots sufficiently large to cover without breaking the leaves; these may be used as occasion requires for ten days or a fortnight, until the plants get a good hold of the soil.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

April 2.—Potting Feverfew, Lobelias, and remainder of both kinds of Achyrantes; also Coleuses, and another batch of French Beans. Removing *Lælia autumnalis*. Sowing Stocks, Asters, Balsams, Cinerarias, Larkspurs, Picotees, Pansies, and Cockscombs; also Veitch's Perfection and Champion of England Peas, Long-pod Broad Beans, and a little Marjoram and Sweet Basil in heat; likewise Cabbage and Cauliflowers out-of-doors. Planting Cerastium; also Hollyhocks, and sheltering them with Laurel branches; likewise planting *Vinca minor*, autumn-sown Cabbage, Red Cabbage, and Cauliflower. Dividing *Dahlia*s. Grafting old Pear stumps. Disbudding trees and watering third Peach-house border. Earthing-up Cauliflowers under hand-glasses. Cutting Laurels. Hoeing among Roses and Strawberries. Cleaning Creepers in conservatory. Making a new Mushroom bed.

April 3.—Potting *Calceolarias*, *Delphinium formosum*, latest-struck *Heliotropes*, Mrs. Pollock *Pelargonium*, Crystal Palace *Tropæolum*, and *Verbena venosa*; also *Salvias*, *Centaureas*, and *Cineraria maritima*; likewise potting *Dendrobium Paxtoni* in small lumps of peat and broken crocks. Sowing Parsnips, Red and White Celery, and a frame of Radishes. Planting Arabis, Pinks, Carnations, Antirrhinums, and *Phloxes*; also Rhubarb and Potatoes. Pricking-off *Perilla* and Potatoes. Putting in a batch of Mint to force. Earthing-up Potatoes in pits. Emptying Vineries of bedding plants. Cleaning and dressing Globe Artichokes. Snaphoring *Vinca* pipes for red spider. Re-staking, cleaning, and tying *Lupagerias*. Hoeing among trees and shrubs. Cleaning and mowing all Grass.

April 4.—Potting *Dracenas*, Ferns, and first-sown Balsams. Sowing *Invincible* and other Sweet Peas, Mignonette, and Bush Basil; also Seakale in well-watered drills; likewise Summer Savory, Angelica, pot Marjoram, Salsafy, Spinach, and a second crop of Turnips. Planting *Salvia patens* and British Queen Strawberries. Top-dressing *Lilium lancifolium*. Earthing up Melons and watering Potatoes in frames. Preparing more land for Peas, and old Seakale land for Potatoes. Planting *Dielytras* for next year's forcing out-of-doors. Tying up late Vines. Putting *Artemisia* and *Nepeta* out-of-doors. Re-arranging conservatory. Watering Cauliflower plants under glass with guano-water. Staking Hyacinths in open flower-beds.

April 5.—Potting off Tomatoes and Capsicums, replacing them in heat, and shifting *Centaureas* and *Heliotropes* into larger pots. Re-potting large *Aerides*, and making up other small pots with the offsets; also *Cypripedium barbatum*, using nothing but Moss. Planting Globe Artichokes, Seakale, and Sir Harry Strawberry. Plunging *Rhododendrons*, Azaleas, and other forced shrubs in open ground. Preparing frame for Celery, filling up cracks in clay round grafts, and thinning fruit in third Peach-house. Hoeing and raking Strawberry plantations. Earthing up Cauliflower plants between rows of Peas; also autumn-sown Cabbage. Cutting July-sown Cabbage.

April 6.—Potting off *Taberoses*, *Thunbergias*, and Melon plants. Shifting Musk and Intermediate Stocks into larger pots; also young *Fuchsias*, Anne Boleyn Pinks, and *Kalmia latifolia*. Potting *Callanthes* in peat, loam, and leaf-soil in equal parts mixed with sand and crocks. Putting Moss over the drainage. Sowing *Zinnias*, *Gomphrenas*, *Godetias*, Globe *Amarantus*, *Primulas*, *Thunbergias*, *Mimulus*, and Borage. Planting selected Beetroot for seed; also Ash-top Potatoes and spring-sown Cauliflowers. Pricking off Annuals, White Celery, and *Perilla* in boxes and placing them in Vineries. Putting in *Bouvardia cutinosa*. Disbudding Black Hamburg and Muscat Vines, and thinning Grapes where ready. Earthing up spring-sown Cucumbers. Clipping Ivy. Clearing away Brussels Sprouts to make room for more Potatoes. Making up hotbed for Pink cuttings. Throwing out Celery trenches. Dividing *Mimulus*. Getting *Epacris* from conservatory and placing them in greenhouse. Putting *Camellias* in Peach-house and *Primulas* into cold frames. Commencing to water bedding plants in afternoon instead of morning.

April 7.—Potting *Achimenes*, Stocks, Sweet-scented *Verbenas*, and *Pelargoniums*; also *Chamaepeuce Casabone*, and putting them in Vinery. Shifting Castor-oil plants into larger pots, old *Fuchsias* into their flowering pots, and basketing large plants of *Vanda cœrulea*. Sowing Annuals in border, Mignonette among Rose bushes, and a bed of Sage. Pricking out Golden Feather *Pyrethrum*, more Lettuce, Cauliflower, first-sown Celery plants in frames. Thinning Carrots in frames, and fruit in Strawberry-house. Putting a few

Azaleas and other plants likely to be too forward into back shed to retard their flowering until wanted. Watering Potatoes, Carrots, and Lettuce. Tying up more Lettuce. Throwing up ridges for Vegetable Marrows. Trenching vacant land, and digging borders for Violets. Temperature—Late Vinery, ready for disbudding, 58° at night; second Peach-house, stoning, 55°; late Peach-house, ready for first thinning of fruit, 55° at night; Phaleuopsis-house, 75°; East Indian-house, 70°; Dendrobes, 65°; Odontoglossums, 55° to 57°; and Cattleyas, 65°; Strawberries setting, 55°.

THE INDOOR GARDEN.

CULTURE OF EUCHARIS AMAZONICA.

Of all the plants requiring stove treatment that have been introduced to Europe during the present century, there are few, if any, that have become more general favourites than this, or that better deserve to be grown by all who have the convenience of a house wherein can be kept up an amount of temperature sufficient to grow it. When the plant first made its appearance in the gardens of Britain, the extreme purity of its lovely white flowers, combined with their exquisite fragrance, at once produced an impression in its favour, even from the imperfectly grown examples that were first seen—imperfectly, so far that the small pot culture to which it was then thought best to confine it was not such as to admit of that full development which it has since exemplified under more liberal treatment, as the restriction of its roots to promote flowering (at first thought requisite) has been found altogether unnecessary, and so mischievous that it seriously interferes with the bulbs increasing in the same degree as when they are accommodated with plenty of space for growing. In this it differs from most bulbous plants, the generality of which do not succeed well under pot culture unless their roots are somewhat confined, whereas this *Eucharis* will thrive in any amount of room.

It has no particular season of flowering, as with suitable treatment the same plants will bloom three times in the course of the year, by subjecting them to alternate short seasons of growth and rest. To render it full justice, it should not be moved when in bloom to a conservatory or similar house that is cooler than where it has been brought on into flower, as growth should immediately follow the production of bloom, and it naturally receives a check if removed from heat. It is a remarkably effective plant in the stove, where its stout, ample, deep green leaves set off to the best advantage the numerous umbels of wax-like flowers that rise well above the foliage; but it is especially for the production of cut flowers for filling vases and for bouquets that it is most valuable, almost rivalling the *Camellia*. In addition to the individual flowers standing well when cut (which their peculiar texture and substance insure), it also has the merit of succession, each umbel opening consecutively, and also throwing up a succession of flower-stems, so that, when desired, almost every flower can be cut as required, a circumstance that has made the plant a general favourite with those who grow flowers for market, or who have to provide for private establishments where a continuous supply is needed. The plant is propagated by separating the bulbs, which increase moderately fast when well grown; but, like most other evergreen bulbous subjects, it does not like to have its roots much disturbed—which, whenever interfered with to the extent necessary in separating them, has the effect of retarding growth for a time; therefore the plants should only be broken up when they have either got larger than is requisite, or when it is desirable to increase the number. The time for carrying out the operation should also be chosen when growth is complete, not attempting it when the leaves are in course of formation, or when they are not fully matured. We will suppose that early in the spring a large plant exists which it is deemed advisable to break up, the growth of which is completed as above described; turn it out of the pot, and if the roots be very much matted and the soil of an adhesive nature, it will be very difficult to separate them without breaking; to avoid this place the plant in a tub large enough to admit the ball, and half fill it with tepid water, and work out all the soil with the fingers, which will leave the roots so that they can be separated with less breakage;

the bulbs may be divided with a knife at the point where they adhere to each other, or they can be parted by hand, placing them singly or two or three together in pots from 5 in. to 7 in. in diameter. The plant when growing requires a copious supply of water, consequently the pots must be well drained. They will thrive in good turfy loam, to which add as much sand as will keep it in a condition for the water to pass freely through it. Pot firm without injuring the roots, covering the bulbs to about half their depth. Do not give much water until growth has commenced; place them at once in a temperature of 70°; if they can be plunged in a bottom-heat 10° or 15° higher, they will progress all the quicker. In this temperature they will grow fast; shade slightly during the hottest part of the day in very bright weather, but in doing so do not darken the plants too much, or it will cause them to grow weakly; for this reason they should have as light a situation as can be given them. Let them have a moderate amount of air early in the day, shutting it off in good time, and syringing overhead at the same time. They will bear through the summer as much heat as the generality of stove plants. It will not be advisable the first summer to rest them for flowering, as it will be better to get as much growth as possible. About the beginning of August shift them into pots 2 in. larger; continue to keep them on with a liberal amount of heat and moisture, both at the roots and in the atmosphere, until the autumn, by which time they will have made considerable progress. At this time, when the leaves are fully matured cease shading, and gradually withhold water till the soil gets so dry as to cause the leaves to flag slightly, but not so as to injure them, giving a little before this occurs just to freshen them up, and again alternating the treatment by drying and then slightly watering them. Continue this treatment for seven or eight weeks, during which time they can be kept in a night temperature of 50° with a few degrees higher in the day, when they may be well watered and placed in 10° more heat; if they can be plunged in 10° higher than this, it will be still better. So managed they will quickly push up their flower-stems, and they should be encouraged by supplying them with plenty of water at the roots, and as much heat as is consistent with the diminished light of the season. Thus treated, after flowering they will grow on slowly through the winter, and after their full development they may be again submitted to the drying and resting process, after which increase the temperature, give water, and treat them in every way as before. This alternate growing, resting, and flowering, can be practised two or three times in the year with the best results without injuring the plants in the least; do not at any time pinch them for want of pot room. When the soil is well filled with roots they will be much benefited by a good soaking with manure water once or twice a week. For general purposes moderate-sized plants in 12-in. or 13-in. pots will be found the most convenient, but where it is desired, they may be grown on into specimens 6 ft. across, by simply using pots or tubs proportionate in size. When large they make fine exhibition plants, their general appearance being such as to contrast well with anything else.

INSECTS.—Most of the pests that infest stove plants will live upon *Eucharis*, but, from the nature of the leaves, they are much easier to destroy than on some subjects. If thrips or green fly make their appearance, fumigation will generally be found the best remedy, but from the regular use of the syringe, these and red spider are not often troublesome. Should scale or mealy bug gain a footing, they must be diligently sought for and removed by sponging, using a soft brush down to the base of the leaf-stalks where the bugs will lodge; and if these pests be not destroyed, they will soon increase to an extent that will both disfigure the plants and do them serious injury by the constant cleaning process requisite.

T. BAINES.

PROPAGATING VARIEGATED PELARGONIUMS.

SPRING-STUCK plants of these are for some purposes more useful than autumn-struck ones. The best way is to fill as many 3-in. pots as may be required, allowing half-a-dozen cuttings for each pot; use light, rich, sandy soil, and press it into the pots rather firmly; on the top of this place $\frac{1}{4}$ in. in depth of silver sand, and either water before inserting the cuttings or not, according to circumstances.

Plant the cuttings round the sides of the pots, and if they be large and have much foliage, perhaps less than six will be sufficient for each pot; at any rate, do not remove more of the leaves than will allow the cuttings to be made firm. When they are all in, water them with a rosed pot, and place them on shelves in the brightest and hottest part of any forcing-house available, where they can stand in the full sunshine. Our spring stock of cuttings is just rooted, and I am quite sure that we have not lost more than five per cent.; they have been placed on shelves at the back of a forcing-house, where the temperature never falls below 60°, and at closing time in the afternoon, it is often for a short time above 90°. Yet the cuttings have never been shaded, and they have scarcely lost a leaf; they have, however, always been kept regularly moist, and the watering was effected by introducing the pipe of a small watering-pot between the cuttings, and damping the sand carefully, yet thoroughly, without wetting their leaves. Damp being the great enemy to this class of plants when in a confined atmosphere, watering must be carefully done, and yet at the same time the soil must be kept in a moist condition if the cuttings are to root well and quickly. The cause of cuttings of tricolor and other variegated *Pelargoniums* damping off is not unfrequently due rather to the unequal condition the soil is in as regards moisture, than to too much water being given. Too often, from a fear of wetting them too much, they are allowed to get dust-dry, the tissues become shrunken, and yet, perhaps, the leaves do not flag. Well, after a time comes the watering-pot, and they get a good soaking as a matter of course; the tissues imbibe too much water—become gorged in, fact—and as a natural consequence the cuttings fog or damp off. When cuttings or seedlings damp off, the cause might often be found in a previous period of neglect, rather than a present superabundance of moisture.

E. HOBDAY.

EUPHORBIA JACQUINIEFLORA.

VIEWED either as regards its general usefulness or for the exquisite beauty of its bright cerise-coloured flowers, the *Euphorbia jacquiniæflora* stands quite unrivalled as a winter-blooming plant, and is one of those good things of which it may truly be said that one can cut and come again, as the cutting is but the prelude to a fresh crop of flowers being produced, for the top is no sooner removed than the plants break again, and, from having more branches, are even more attractive than before. The loss of so much growth as is necessarily entailed where cut blooms are in great request, is a serious matter for most plants, but in the case of the *Euphorbia jacquiniæflora* no damage is done by the cutting, and its value is not deteriorated in any way beyond the loss of its flowers, the removal of which only forms part of the requisite pruning to which the plants have to be subjected later on in order to get young wood for propagating or to grow on for another season's display. Although the individual blooms are small, they are produced in such profusion and are so elegantly arranged as to form the most charming natural wreaths for ladies' hair, for which purpose they are peculiarly adapted, and are always special favourites. Besides being of such great value for cutting, they are equally serviceable as pot plants for decorative purposes in either large or small sizes, the latter of which are specially suited for the embellishment of dinner-tables, where their gracefully arching branches and the rich glow of colour of the flowers with which they are so thickly studded show off to great advantage in contrast with the usual surroundings.

The *Euphorbia jacquiniæflora* is naturally of a loose, straggling habit, but nevertheless it is a very tractable plant to manage, and readily conforms to any mode of training or to any style of growth, from the weak bush form of from 1 ft. to 2 ft. high, up to large specimens, or even to cover the back wall or roof of the stove, which is perhaps the best way of all to cultivate it where quantities of cut flowers are required. Planted out in a well-drained border, and grown in this way, with sufficient room for its branches to spread and develop themselves, there is scarcely any limit to its capacity for blooming, especially if it be so situated as to have plenty of light and sunshine to consolidate and ripen the wood, which is a very important matter with all sappy plants of this class. An intermediate-house suits it even better than a stove, as a temperature varying between 55° and 65° is amply sufficient for it during the whole of the winter, provided the atmosphere is correspondingly dry; and flowers that expand under

such conditions always possess more substance and last considerably longer than those that are subjected to more heat.

Treatment when Planting out.

If planted out in either of the above structures, it is of the greatest importance that the border should be well drained, for although fond of water when growing freely, anything approaching a wet and sour state of the soil is fatal to success. In a border of 2 ft. deep, at least 6 in. ought to be given up to drainage, and this should consist of broken bricks or some warm, dry absorbent material of that kind, over which it will be necessary to place some rough, freshly-cut turves, in order to prevent the soil from working in amongst it, thus filling up the interstices and defeating the object in view. The remaining space should then be filled up with a mixture of peat and loam or leaf-soil, and the latter in about equal proportions, with a liberal admixture of sharp clean sand to keep the whole open and porous. A plant turned out at once under such favourable conditions will not be slow in establishing itself if properly cared for during the summer; and where space can be afforded, I know of nothing more deserving or serviceable, or that will make a better return, than this beautiful *Euphorbia*, affording, as it does, plenty of cut flowers for at least two months during the dullest time of the year, when flowers of a bright colour are sadly deficient, and consequently doubly appreciated. The best way of treating this plant when it is planted out, is to allow it to fill the allotted space as quickly as possible, and then to nip out the ends of the shoots to induce them to break again, which will greatly multiply the number of sprays for cutting, and they will be of a more convenient size than those on the main branches; but the stopping should not be deferred later than the end of July or middle of August, otherwise there will not be sufficient time to ripen the lateral growth formed afterwards. To aid in this matter, the plants should be kept somewhat drier at the roots in the autumn with a corresponding diminution of atmospheric moisture, which will soon harden the wood and induce them to form plenty of flower-buds that will readily expand when water is again applied after the turn of the year. The habit of *Euphorbia jacquiniæflora* renders it very suitable for training loosely to trellises, and where convenience does not exist for planting it out, fine specimens may be grown in this way from which immense quantities of bloom may be cut, or that will be aglow with colour, and objects of great beauty for decorative purposes where large plants are required. Neat light wire frames made pyramid-shape are the best for the purpose of training them on, as being less conspicuous than stakes, they are not so obtrusive and accord better in size with the branches; but when treated in this manner, the tying should be done in such a way as to leave the branches tolerably free that the plants may be natural-looking instead of having that stiff, formal appearance so objectionable to a well-trained eye. Excepting for warm conservatories or greenhouses, the *Euphorbia jacquiniæflora* is not available; and even in these, to be safe, it must undergo a preparatory process by a gradual inuring to the change. Plants required for this kind of work should never be grown in bottom-heat nor in a temperature higher than is absolutely necessary, that the change they undergo on removal may be as slight as possible. When subjected to bottom-heat, there are few things that will endure a house many degrees lower than the one they have been grown in, and *Euphorbias* are as sensitive to this as most plants, and equally quick in showing how much they resent it. In a low temperature such as that of the conservatory or greenhouse, care should be taken to set them in the warmest position away from the influence of draughts, or where air is admitted, and never to give more water at the roots than is absolutely necessary to keep them from flagging.

In Pits or Frames.

During summer, when shelves in the stove become too hot and dry for their well-being, they may with advantage be transferred to any pit or frame, where they will be more under command, and can be syringed and treated as occasion requires. Unless during the very hottest part of the day shading will be unnecessary, and if closed early and damped overhead, there will be no difficulty in maintaining them in robust health with

the leaves in that fresh, glossy condition that adds so much to their beauty. In whatever situation they are grown they should always be kept well up to the glass, that they may be as short-jointed as possible, and make a firm, woody growth. When simply required for cutting from, and good sprays are the object aimed at, the plants should be allowed to have pretty much their own way during the summer, and when winter sets in they should be ranged along the front wall of the stove close up to the glass, under which the tops can be loosely tied to string strained from rafter to rafter, in which position the flowers not only come stouter in texture, but likewise much brighter in colour.

In Windows.

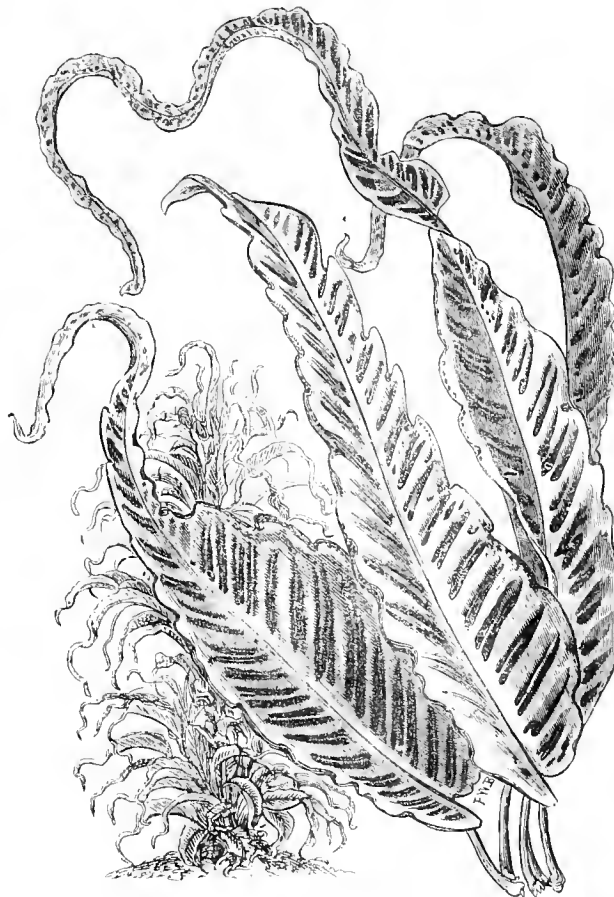
As a window plant in a warm room *E. jacquiniæflora* is perfection, and although it will not stand for any great length of time in such a position, it may be propagated so readily, and got up to flowering size with so little trouble, that it is worth growing extensively for this purpose alone. For all uses of this kind and for table decoration, small, neat plants, in 4-in. or 6-in. pots, are the most serviceable. To have them in this form, they should be propagated during April or May, and when rooted potted in sandy peat and loam, and then placed for a few days where they can be kept close and moist till they get hold of the soil, after which a light, airy situation, such as that of a shelf near the glass, must be accorded them to keep them from drawing. In order to have them dwarf and bushy, frequent stopping of the leading shoots will be necessary, which will induce them to break back, so that by the end of the season a number of short, twiggy branches will be formed, all of which will flower in the most profuse manner if properly ripened.

Propagation by Cuttings.

When plants of these have done blooming, they should be kept dry at the roots for a time preparatory to cutting them back, to obtain cuttings for propagating, or to induce them to break for the purpose of growing them on again to get extra-sized specimens. If an increase of stock be the object, the cuttings should be taken off when about 4 in. long, with a piece of the old wood at the base to form a "heel," without which it is a difficult matter to strike them with any degree of certainty, as they invariably turn black and fog off. To get the cuttings firm and short-jointed, the plants, when started by keeping them just moist at the roots and well syringed, should be placed well up to the light in an airy situation, the cuttings from which will be found to root readily, if inserted in sandy soil in well-drained pots, and then placed in a propagating-box, where they can receive a brisk, moist heat, or under a bell-glass in the stove, where they can enjoy the same favourable conditions. Many cultivators, both professional and amateur, have been known to fail in the propagation of this very desirable plant, from endeavouring to do so from the old wood, or in taking the cuttings from the plants without beels and when they are long and soft from want of exposure; but if only such cuttings as those that are noticed above be taken, nearly all may be expected to grow.

Insects.

The only insects that affect *Euphorbias* in a sufficient degree to cause injury or check their growth, are green fly and scale the former of which is easily got rid of by fumigating with Tobacco, but the latter is a more troublesome pest to deal with, and can only be removed by hand-washing. Fortunately, they first effect a lodgment on the stems, from which they can be readily ejected by means of a soft sponge or brush, and this should always be done before they get on to the leaves or amongst the foot-stalks of the blossoms, where they cause much disfigurement, and whence it is a most difficult and tedious matter to dislodge them. Insecticides are but of little use for the purpose of cleaning such plants as these from an insect that is so easily destroyed as soft brown scale, and as there is some risk to the tender bark of the plant in applying these mixtures, they had better be avoided.—S. J.



Long-tailed Croton (*C. M'Arthurianum*).

***Livistona chinensis*.**—Of this fine Palm we have here perhaps the finest specimen in the United States. It is in vigorous health, and is planted out under glass, and this winter has produced four immense branching flower-spikes that measure from 3 ft. to 4 ft. long, and that are now thickly set with fruits which I trust will ripen. It is 18 ft. 6 in. high, and 22 ft. by 19 ft. through in spread of leaves; it has a trunk 14 ft. 6 in. in height, 5 ft. of which at the base are naked, that is, without leaves. The butt or swollen part of the stem next the ground is 5 ft. in circumference, and the trunk, $1\frac{1}{2}$ ft. from the ground, is $2\frac{1}{2}$ ft. round. It has forty-nine fully developed and healthy leaves, the "fans" of which, including the pendent segments, are from 5 ft. to 6 ft. 3 in. across. Last autumn this plant was so vigorous that it sent its young leaves 2 ft. through the roof of the house; but on the approach of winter these leaves were cut away, and several since, in all eleven, because it is impossible to bend them, so near the glass is the crown of the Palm. We cannot save this magnificent specimen another year, as the house will not contain it, and it is in too dilapidated a state to be enlarged. The leaves of the *Livistonas* are well known to be terminal and fan-shaped, divided into numerous segments, which are split at the apex, and frequently have threads hanging between them, while the foot-stalks are sheathed at the base

in a mass of netted fibres, and are often prickly along the edges. Their branching flower-spikes grow out from amongst the leaves, and have several incomplete leathery spathes surrounding their stalks. The flowers have a three-lobed calyx, and a three-parted corolla, and the fruits are dry and one-seeded.—W. M. FALCONER, *Botanic Garden, Cambridge, Massachusetts*.

LONG-TAILED CROTON.

(*C. M'ARTHURIANUM*).

A WELL-GROWN specimen of this handsome new Croton was exhibited for the first time at the last meeting of the Royal Horticultural Society at South Kensington, and received a first-class certificate as an attractive decorative plant. It is robust yet compact in habit, the irregularly-undulated, strap-shaped leaves being nearly 2 ft. in length, and $1\frac{1}{2}$ in. to nearly 2 in. in breadth, their apices curiously lengthened out into tail-like points. Their colour is a glossy green, conspicuously veined, marbled, or blotched with golden-yellow, the petioles and midrib being tinged with orange or soft red. The plant

grows freely under ordinary stove culture, and well deserves attention as a distinct variety of a popular group of fine-foliaged plants.
B.

THE LIBRARY.

AGROSTOGRAPHIA; OR, A TREATISE ON CULTIVATED GRASSES.*

WHEN a book has reached a sixth edition, as this has done, critical remarks respecting it are scarcely called for; nevertheless we are glad to direct attention to it, inasmuch as it contains much useful information, historical as well as cultural, and is moreover copiously illustrated with figures of all the Grasses cultivated for forage or pasture, as well as those best suited for lawns and pleasure grounds; of the latter the following Table affords an example:—

FOR FINE LAWNS, CROQUET GREENS, BOWLING GREENS, BLEACHING GREENS, &c.

Kept constantly under the scythe.

NAMES OF GRASSES.	Light Soils.		Medium Soils.		Heavy Soils.	
	With a Crop.	Without a Crop.	With a Crop.	Without a Crop.	With a Crop.	Without a Crop.
<i>Avena flavescens</i> ...	1	1	1	1	—	—
<i>Cynosurus cristatus</i> ...	8	8	9	9	10	10
<i>Festuca duriuscula</i> ...	3	3	4	4	5	5
<i>ovina tenuifolia</i> ...	2	2	2	2	1	1
<i>Lolium perenne tenue</i> ...	15	20	20	22	22	24
<i>Poa nemoralis</i> ...	2	2	2	2	2	2
<i>peruvianus</i> ...	2	2	2	2	2	2
<i>trivialis</i> ...	1	1	1	1	1½	1½
<i>Trifolium repens</i> ...	6	7	6	7	6	7
<i>minus</i> ...	2	2	2	2	1	1
	15	18	49	52	50½	53½

Tables are also given showing the kinds and quantities of Grass seeds required for sowing an imperial acre for permanent pastures of various kinds. In other Tables the best mixtures of Grasses for laying down irrigated meadows, or for sowing in woods, or beside shady woodland walks, are pointed out as well as those Grasses best suited for growing on heaths and moorland, or on rocky and gravelly soils of the most barren kind. Apart from descriptions of all native and foreign Grasses used in this country for pasturage, a copious list of both their English and scientific names is given. This edition, the work of Mr. Syme, the manager of the Lawson Seed and Nursery Company, well deserves a place in every garden library, containing as it does information and statistics not to be obtained elsewhere.

ORCHID CULTURE.†

THIS is an interesting and well-printed work, consisting of upwards of 400 pages, and containing much information on the culture of a now popular group of exotic plants. The book is written for American cultivators who have to contend against a more variable climate than even that of England, their summers being hotter and drier, and their winters much colder; nevertheless there are many cultural hints in this volume which an intelligent cultivator may turn to account. The main value of the work, however, will be for occasional reference as to nomenclature or as an index to books containing coloured figures of the different plants of which there is a list given under each species. Lists are also given of the best kinds for large and small collections; and a glossary at the end explains the technical terms used, and also affords much valuable information relating to the termination of specific names. There is also a tolerably complete list of collectors and amateurs, &c., to whom either genera or species have been dedicated. In short, this is undoubtedly the most comprehensive of all popular hand-books on Orchids and their culture, and it is one which no English cultivator who wishes to be fully posted up in all matters relating to them can afford to be without.

* "Agrostographia; or, a Treatise on Cultivated Grasses." Edinburgh and London: Lawson Seed and Nursery Company.

† "Orchid Culture," by Edward Sprague Rand, Jun., Boston, U.S.A. London: Trubner & Co. *

THE FLOWER GARDEN.

LILY BULBS.

IN "F. W. B.'s" remarks (see p. 188), he says:—"Dunedin" has not assisted us so much on this subject as at first sight he appears to have done." I am sorry, indeed, that on second sight he should have been disappointed. He says, in opposition to my doctrine:—"The surrounding scales do not necessarily perish, since in many Lilies, and especially in *L. davuricum*, they become detached from the bases of the old flower-stems, and form a whole colony of young bulbs." So much the worse for the new bulb, I say. But what has this to do with the continued succession of any particular bulb? If any of the surrounding scales drop off, it must be caused by rough treatment or carelessness; for Nature does nothing by halves, nor is any bulb clothed with superfluous coverings. There is not, in fact, a single scale which is assigned to a Lily bulb that is not absolutely necessary for the nourishment of the new bulb within it; and it was on this account that I said:—"When lifting and transplanting bulbs the greatest care should be taken not to damage the scales." "F. W. B." says, moreover;—"The term 'seed bud' used by 'Dunedin' is an old one, and is calculated to mislead, inasmuch as the mode of reproduction which he mentions has nothing to do with the seed whatever, and is simply an axillary or scale-bud, popularly known by cultivators as an 'offset.'" I admit that the term "seed-bud" is an old one, but I do not admit that it is calculated to mislead. Those who will take the trouble to look carefully into this matter, will ere long find that the seed-bud, and the seed-bud alone, has everything to do with the reproduction of the new bulb and the continued succession of its race. As an incontrovertible proof that I am misleading no one, I send you a portion of a bulb which I lifted and dissected in January last. On the right, as it is fixed on a card, you will see the remains of the inner scale; on the left is a portion of the new flower-stem; and between the two you will see the seed-bud distinctly about the size of a canary seed. In order, however, to leave no room for doubt I send you portions of three bulbs of the same kind which I lifted only three days ago. I have picked off the scales carefully until I arrived at the base of the flower-stem, where I knew I would find what was once the germ or seed-bud, but which has now grown so much since January last as to entitle it to be called a young bulb. You will see in all the three specimens that the young bulbs are growing as close to the flower-stems of the parent bulb as the seed-bud is growing in the younger specimen. About ½ in. from the base of the new flower-stem you will observe a round scar which marks the seat of the old flower-stem before it had entirely died down. Opposite to this scar on the other side of the new flower-stem—and this is worthy of special observation—you will see, in all the three cases, that it is there where the young bulb is seated, thus showing that the true or legitimate seed-bud has a pre-determined or settled position in the parent bulb, namely, on the opposite side of the old flower-stem, the new flower-stem being always between them. The seed-bud and the three young bulbs which I submit for your inspection, are the true and legitimate reproducers of the bulbs of their race. Experience teaches us where to search for and where to find them, but no amount of experience can teach us where we are sure to find axillary, adventitious, accidental, or any of the other buds mentioned by your correspondent, before they actually present themselves to our view. All small external buds (called adventitious), wherever they may present themselves, should be removed as soon as possible and treated as offsets, otherwise they will rob the principal bulb of its due share of nourishment, and thus prevent us from growing large plump and perfect bulbs. The true or legitimate seed-bud of the year would then grow and flower strongly the following season, more so, possibly, than even its predecessor had done before; while, on the other hand, not one of all the various buds that are named and set forth to oppose my doctrine, will do anything of the kind.

I send you the half of a bulb of *Lilium*, which I lifted and cut in two vertically, last October. As it has been exposed to the air ever since, it is of course shrunk and shrivelled up to half its original size. Within it, there are two well-grown

new bulbs, which, you will observe, have sprung from the same source, as if the germ, when it vegetated, had generated two seed-buds instead of one, which consequently have grown up to what are properly called twin-bulbs—not offsets. This will account for the fact that we sometimes see two stems growing or shooting up apparently from one bulb, and both flowering well the same year; sometimes, but rarely, a Lily bulb has three at a birth. "F. W. B." observes that "there are one or two points about Lily bulbs on which I am by no means clear, and I trust that 'Dunedin' may be able to render us some assistance. For example, I had always been led to believe that growth might take place without leaves, but that this was at the expense of substance, or cells previously stored up in the plant; we have, however, what appears to be trustworthy proof that Lilies not only become larger in the bulb, but also more weighty without the assistance of leaves." This is a question which is very easily answered. As a general rule, the month of October is considered to be the best time for lifting and transplanting bulbs, as at that time the plant is to all appearance in a dormant state, all outside the bulb being in a natural state of decay. But inside the bulb this is not so. The new bulb is growing with continued freshness, feeding on the stores laid up in the scales of the parent bulb. The result of this is that frequently the new bulb grows to a much greater size than its parent, especially if the parent bulb happen to have been planted in congenial soil, from which it has drawn into its scales a full supply of nourishing sap. It is, of course, as "F. W. B." supposes, at the expense of the substance stored up in the scales of the old plant; for the old plant is Nature's store-house for this very purpose, and as soon as all the sap is extracted the old plant dies entirely, having performed all that Nature intended. We have a visible proof of continued growth in the portions of the bulbs I have now submitted to you, as it is easily seen that they have been growing and increasing in size all the winter. We have another proof of the continued vigour of the new bulb in *L. candidum*. In the autumn, while the old stem is dying down and perishing, the new bulb is pushing up aboveground a cluster of leaves, which continue fresh and green during the winter. This has given rise to the mistaken idea that *L. candidum* is an evergreen; it is, however, no more evergreen than any other Lily. Allow me, in conclusion, to thank Mr. G. F. Wilson for his evidence (see p. 188) that "the bulb of *L. giganteum* unmistakably dies after flowering, and that in some of the North American Lilies it can only be the young bulbs which flower." DUNEDIN.

ANEMONES.

THE ANEMONES are a large family, containing about seventy species, and of all the seventy we may safely say that each is worthy of a place in any garden. In Great Britain we have only three of the family—*A. nemorosa* (and its many varieties), *A. apennina*—both excellent little plants to grow in shade or shrubberies, though they will grow equally well in more open spots—and the beautiful *A. Pulsatilla*, or Pasque-flower. This must be grown in a more sunny spot, and is somewhat particular about soil. As a wild flower it grows on chalk, but this is not absolutely necessary; it will grow in any good garden soil that is not wholly stiff clay. When well grown, the garden plant is far superior to the wild one, and is one of the loveliest of our late spring flowers. But of all the Anemones there are probably few that are more strikingly handsome than the *Anemone fulgens*. It is a native of the south of Europe, and is especially abundant about Mentone from shore-level to about 600 ft. elevation, and where, according to Moggridge's "Flora of Mentone," it is confined to cultivated ground, and becomes a troublesome weed. It is not a true species, but is a variety of *Anemone hortensis*. It seems also to vary in some few particulars. The flower in the plate (see p. 214) has its petals entirely scarlet, and so it is certainly found; but I have also seen it in gardens as it appears in Mr. Moggridge's plate, with yellow in the lower part of the petals, and with yellow anthers. Its cultivation is most simple; in good soil it may be left undisturbed for years, and is probably better for being left alone. In poor soil it would be benefited by being taken up and

divided and the soil enriched; but whenever taken up it should be returned to the ground speedily. Anemones will bear having their roots kept out of the ground a long time, but there is no good result from this, unless when it is wished to prolong or alter the time of flowering. The usual time of blooming for *A. fulgens* is from the end of February to April, and in good soils and in good seasons the colour of the flowers is very brilliant. HENRY N. ELLACOMBE.

Bitton Vicarage.

Spring-blooming Annuals.—Two or three of these deserve special mention on account of their undoubted vernal beauty. One of these is the charming *Collinsia verna*, but it is seldom met with. I have never seen it in better condition than in Mr. Barr's grounds at Tooting, where it is used as a kind of margin to bulb beds. The seed should be sown thinly in lines soon after it is gathered; in due course it will germinate, and being of a very hardy character it stands the winter and flowers along with the Daffodils in spring. It is said that its seeds will not germinate unless sown soon after they are ripe. *Collinsia violacea* is a later introduction, which, like *C. verna*, should be sown in autumn to bloom in spring. It is a very decorative annual, but nevertheless it is not a favourite. Then there is the exquisitely charming *Leptosiphon roseus*, one of the most lovely of dwarf, spring-flowering annuals. It should be sown in autumn by casting a little seed over the bed and then thinly surfacing it with fine soil. It will grow freely, and in spring form a carpet of a delicate, soft, pinkish blush. It is one of those useful flowers that should find a place in every garden.—D.

Double Blue Hepatica.—"Inquirer" asks (see p. 232) how to grow this charming spring flower. Like him I never could induce it to live till I hit upon the following simple mode of treatment, under which it thrives and flowers as successfully as can be desired:—I have all the plants of it potted in ordinary garden soil, taking care to keep the crowns well aboveground. In autumn the pots are plunged in a cold frame, and there they remain till after flowering in spring. When the hot weather of summer comes, the pots are placed under a north wall, where the sun never reaches them, and they are watered occasionally as required during dry weather. There they remain till the time for removing them back to the cold frame has arrived. I treat several kinds of hardy *Cyclamens* in the same way, and they equally appreciate the little extra attention thus bestowed on them.—G. F., *Bellingham*.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Size of the Scarlet Wind-flower.—With reference to the size of this as compared with other Anemones, it is not so much from it surpassing them in size occasionally that makes it so distinct in aspect and so valuable, but from the fact that its flowers are so fully and boldly spread. The result of this is that even on harsh days in early spring it is as effective as the most brilliant flowers of the summer garden.—E. F. ELLIS.

Imported Bulbs.—In reference to these, one fact must be decidedly clear, viz., that under our enormous annual importations the whole country would soon be a bulb garden, if the bulbs did not speedily die out, the cause of which must be attributed to the drying off process, the pernicious effects of which are annually everywhere visible.—J. GROOM, *Henham*.

***Centaurea rutefolia*.**—This new and distinct species will probably find a home in our flower gardens. It is a native of the Balkan region, and is said to form a handsome silvery pyramid when in flower. It will probably prove hardy in dry soils in winter. It has, I believe, been sent out by Messrs. Froebel, of Zurich.—J. G.

Culture of *Desfontainea spinosa*.—I should be very grateful if you could tell me what is the right treatment for this plant. I have seen it very fully covered with flower in Scotland, but I can find no one in England who grows it successfully.—L. P.—[The *Desfontainea spinosa* will grow in any ordinary garden soil that is not too heavy and cold. It thrives best, however, in a mixture of peat and loam in equal proportions, or with a preponderance of peat rather than otherwise. In such a soil, well supplied with moisture during the growing season, and protected from cold winds blowing from north, north-east, and east, it will flower profusely; and although not a rapid grower, it forms a very handsome and compact evergreen bush. The finest specimens with which I am acquainted are in Devon and Cornwall.—V.]

***Rafflesia Patma*.**—Those of your readers who may be interested in that curious Sumatran parasite, *Rafflesia Arnoldi* (see p. 239), will find another yet more conspicuous and extraordinary species of this singular family (not mentioned by your correspondent), bearing the name of *Rafflesia Patma*, fully described, and accurately figured in two most beautifully executed double coloured plates, wherein all the stages of the flower's development, from its first appearance as a bud, somewhat resembling a Button Mushroom, up to its full expansion, are given in vol. 15 of Van Houste's beautiful work, "Flora des Serres et Jardins de l'Europe," l. 13-16.—W. E. G.

AGES AT WHICH TIMBER TREES MAY BE MOST PROFITABLY FELLED.

TIMBER trees are planted with the view of profit being derived, either directly from the sale of the timber, or indirectly by giving shelter to stock and crops, and increasing the value of an estate by adding to its amenity. But in this short account I shall confine my remarks to trees yielding profit from the sale of their timber, as trees grown for shelter or ornament, or partly for both, are generally allowed to grow beyond maturity before being felled. At the outset it may be observed that much depends on management whether the planting of trees will turn out a profitable or a losing investment; and whatever may be the kind of trees or the soil in which they grow, their general management in judicious pruning and thinning on the one hand, or total or partial neglect on the other, will have much to do with the age at which they can be most profitably cut down. When trees neglected in their youth are drawn up and branchless, except within a few feet of the top, in consequence of overcrowding and want of judicious thinning, they become prematurely ripe before reaching half the normal age and size. In such cases the most profitable system would be to fell the whole at once, and replant the land, as after trees pass a certain stage thinning is of little avail, and a loss and waste of time results from any attempt to improve them by changing the management. But even with careful treatment and thinning from the first the results are different as regards the age at which trees should be felled, the quantity and quality of the timber, and the revenue to be derived by the proprietor therefrom. Thus, it occasionally happens that trees in the same plantation, and in the same soil, do not arrive at maturity simultaneously—one tree becoming mature, it may be, when eighty years planted, while another close by may not reach the same stage before one hundred years; but such is the exception and not the rule, as in well managed plantations trees in the same kind of soil generally attain maturity about the same time, although they may vary much in size. It is stated by some that Scotch Fir, Larch, and Spruce, can be most profitably cut at from twenty to thirty years of age, when growing in a locality where they can be disposed of for mining purposes; but I have not found this to be the case in my experience in the management of plantations within fifteen miles of large coal mines. In such a locality, when the price of prop-wood is high, it will almost invariably be found that proportionally high prices will be obtained for larger timber; while if the plantations be far from a market or a railway-station or sea-port, the crop at that age would not be worth the planting, cutting, and removing, and would therefore be a dead loss to the grower of from twenty to thirty years' rent of the land. Further, it would not pay to cut down trees of the above description for fencing and estate purposes, because these can easily be supplied from the thinnings of well-managed plantations. It has already been remarked that, as a rule, timber trees should be allowed to grow to large dimensions before being cut, but the situation in which they grow often necessitates a different course. For instance, in glens and mountainous districts, and in places inaccessible to horses, the most profitable management would be to cut them down before they arrive at a size too large to be removed in entire lengths by manual labour. At that early stage Fir trees would be valuable for prop-wood, fencing, and other estate purposes, Ash for handle-wood, and Birch or Alder for charcoal or bobbin-wood, &c.; whereas, if allowed to grow to a large size, they would have to be cross-cut in lengths to admit of their removal by men, and this would, in the first place, make the timber useless for many purposes for which it might otherwise have been valuable; and secondly, the expense of removal by manual labour might equal, or

even exceed, the value of the timber itself. When Scotch Fir, Larch, or Spruce, have been planted as nurses for hard-wood trees, they should be thinned out as soon as they begin to encroach on the trees intended for the main crop, as this is necessary for the welfare of the plantation, irrespective of the value of the thinnings. But when such trees are planted as the future crop on suitable ground, it will almost always be found most profitable to allow them to attain timber size. The Larch being of fast growth, and useful for various purposes at an early age, can be cut down profitably much sooner than the Scotch Fir. Oak is extensively used for ship and boat building purposes, furniture, agricultural implements, &c., and is longer than any of our forest trees in arriving at maturity. It can never be cut down so profitably when small as when well matured and having plenty of heart-wood. When young, and with little heart-wood, and a large proportion of sapwood, the timber is of comparatively little value per cubic foot, so that it can seldom be cut down profitably, especially if thriving on soil suitable to its growth, until it reaches 100 years old. Of course, when grown as copse-wood, it ought to be cut young; but even under the most favourable circumstances in Scotland copse-wood is less profitable to the proprietor than a crop of timber, and Larch can be grown more profitably in most situations. The Oak is of slow growth when young, but on suitable ground it increases rapidly after about thirty years. It sometimes happens that Oak, planted in good soil and in a sheltered position, attains a large size, but has little matured heart-wood at sixty or



Acauthus latifolius (see p. 263).

seventy years old, and in such a case it would be better to allow it to remain till fully matured, when the value of the timber per cubic foot would be materially enhanced. The Ash, although capable of growing to large dimensions, can be cut down more profitably in its young state than other hard-wood trees. When clean grown, and from thirty to forty years of age, it is in great demand for handle-wood, and for agricultural implements; but in a rich loam, with dry subsoil, it would be more profitable to allow it to grow to double that age. The Alder is generally in good demand at all stages of its growth, after arriving at sizes suitable for the clogger, and for turnery, or charcoal, and is seldom grown to very large dimensions. Thriving best in damp soil, it can be profitably cut down at forty years' growth, making way for a second crop, which springs up rapidly from the stools. The Beech is of little value in its young state, and is seldom cut till well grown. Birch, like the Alder, can be cut down profitably at about forty years old, being then in good demand for cloggers, charring, and turnery purposes, and when of large size and good quality it is extensively used for furniture. Horse Chestnut is seldom planted for profit, but is valuable as an ornamental park tree. When grown on good soil and in a sheltered situation, however, it can be profitably cut down when it attains large dimensions. Spanish Chestnut is of most value when of large size, and is in many cases used for the same purposes as Oak. It is most profitably cut down when about 100 years old. Elms (Scotch and English) are of little value until they have arrived at timber size, and should therefore never be cut as a crop until they are from eighty to one hundred years old. When on good soil, the English Elm will, when matured, be of large dimensions. The Scotch Elm seldom attains so large a size as the English Elm, but its timber is of more value when matured, and forms heart-wood sooner. The Lime tree, like the Horse Chestnut, is seldom planted for profit, but when of large size it is in great demand for brake blocks for railway purposes, &c. It is, however, of little value before it is sixty years old. Poplars can generally be most profitably sold when about fifty years old. Being very fast growers, they arrive at timber size sooner than most of our timber trees, and the wood is then much used for brake blocks,

boarding, &c. When of small dimensions, the wood of this tree is of little value. Sycamore and Norway Maple, although in demand for turnery purposes when of small size, can seldom be cut down to full profit, until they have arrived at maturity and attained large dimensions, when high prices are obtained for them for printing blocks, &c., and larger timber becomes proportionately more valuable. When the Sycamore is planted in a good soil, well drained and sheltered, it may be profitably cut down when it is about 100 years old. The Willow, like the Poplar, is a fast grower on suitable soil, and can be cut down profitably about sixty years old, and for its timber there is a good demand. Gean tree or Wild Cherry, Holly, and Laburnum are grown more for ornament than for profit, though in some instances good prices can be obtained for their timber. The two latter seldom attain a large size, and may be felled any time when in demand after attaining a size suitable for turnery. In consequence of its hardness and saseptibility to receive a fine polish, the wood of these trees is much sought after. The Walnut, when matured, is much esteemed for furniture, &c., but is of little value in its young state, and is generally planted for its fruit or as an ornamental tree.—“Arboricultural Society's Proceedings.”

Cedars in Algeria.—A friend writes from Algeria as follows:—
“The seeds which I send you are from the Cedar trees at Peniet el Hâd.

its use indoors as a window plant, and out-of-doors as a fine-leaved, herbaceous plant. It is one of the most valuable of plants for planting in isolated tufts on the turf; so placed in good soil, it in a few years forms a luxuriant mass of leaves that are individually large, fine in form, and of a deep glossy green.—V.

EARLY CABBAGES RUNNING TO SEED.

As usual, after a mild winter, complaints are everywhere rife of the early crops of Cabbages and Cauliflowers running to seed instead of forming hearts. When crops “bolt” in summer we ascribe the cause to a check of some kind; drought, intense heat, or keeping young plants too long in the seed-bed, all have a tendency to cause premature growth under certain circumstances; and no doubt the cause of early Cabbages “bolting” at this season is due to the tops getting in advance of the roots—ontrunning the supplies, in fact—a check is thus sustained, and the plants rush into flower when they ought to be forming hearts. Cabbages, like other biennials, if sown very early, will always be more or less liable to “bolt.” And this propensity is influenced in some degree by the season, soil, the kinds grown, and the purity and care with which the stock has been saved. The two latter items are not always taken into account in our efforts to trace effects to their true causes, but I am convinced their influ-

TABLE—SHOWING THE DIFFERENT AGES AT WHICH TIMBER TREES CAN BE PROFITABLY FELLED.

NAMES.	Clay Soil or Heavy Loam.		Strong Loam and Gravel Subsoil.		Light Loam resting on Gravely Subsoil.		Light Loam resting on Sandy Clay subsoil.		Strong Sandy Loam and dry bottom.		Light Loam and moist Subsoil.		Poor thin sandy Soil and dry bottom.		Dry Sandy Loam and dry bottom.		Rich Alluvial Loam and dampish Subsoil.		Dampish Clay or Loam along the margin of rivers, &c.		Stony Loam and dampish Subsoil.		Gravelly Loam on Slate or Granite formation.		Gravelly Loam on Limestone formation.		Loam resting on Gravel and Slate formation on sloping ground.		REMARKS.
	Sheltered.	Exposed.	Moderately sheltered.	Moderately sheltered.	Sheltered.	Sheltered.	Exposed.	Exposed.	Sheltered.	Sheltered.	Exposed.	Exposed.	Sheltered.	Moderately sheltered.	Moderately sheltered.	Moderately sheltered.	Exposed.	Sheltered.	Exposed.	Sheltered.	Exposed.	Sheltered.	Exposed.	Sheltered.	Exposed.	Sheltered.			
Alder	50	90	...	...	...	40	...	...	50	40	30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Succeeds well in damp soils. Loses its toughness when old.	
Ash	60	50	70	80	100	80	120	100	70	60	70	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Apt to get damaged by wind.	
Beech	70	80	90	80	100	80	120	100	70	60	70	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Grows to a large size in good soils	
Birch	60	60	50	60	100	80	120	100	70	60	70	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Requires good soil to grow well.	
Chestnut, Horse	80	...	80	90	100	100	...	...	100	80	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
" Spanish	100	80	100	120	100	100	...	...	120	80	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Elm, English ..	70	80	100	90	110	80	...	...	90	70	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Oak	80	80	100	100	120	90	...	...	100	80	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lime	90	80	...	80	80	100	...	...	120	80	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pine, Scots ...	120	100	80	100	110	90	...	...	120	80	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
" Spruce ...	70	80	80	70	70	60	...	...	60	60	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
" Silver ...	60	50	40	50	40	60	...	...	60	70	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
" Larch ...	70	60	50	60	50	60	...	...	60	60	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Poplars	50	70	80	60	70	50	...	...	50	50	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sycamore	60	60	60	50	50	60	...	...	40	70	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Willow	80	100	110	80	100	80	...	...	120	80	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Willow	60	60	45	50	50	60	...	...	40	70	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

A mile from where we are staying rises a noble mountain 1600 ft. high, whose slopes are covered with magnificent Cedar trees much larger than the Cedars of Mount Lebanon, some of them measuring 33 ft. in circumference. There appear to be two kinds of Cedars on the mountain, and the snow which has just fallen only makes the same more glorious. Juniper bushes, as big as Apple trees in Sussex, grow among the Cedars, and later in the spring, we are told, the ground is carpeted with flowers. We are just off to Batora, in the province of Constantina, and are taking tents and provisions for camping out.” If any of your readers have seen the Cedar trees of Algeria, would they tell us something of their growth and varieties. Whether the Cedrus atlantica will ever grow into as fine an old tree as the Cedar of Lebanon, and whether both are really distinct from the Deodar of the Himalayas are questions of deep interest to all who love trees, especially Cedars. JUVENIS.

Acanthus latifolius.—This noble herbaceous plant is slowly making its way among us. During the past winter we frequently noticed the perfectly fresh glossy green of its foliage amidst the surrounding bareness. It is the hardiest of all the Acanthuses, according to some observations made in M. Vilmorin's garden near Paris. The hardness referred to here means that of the foliage; all the species in cultivation in the open ground are hardy at the root. The plant figured (see p. 262) is precious from a double point of view—

ence is not small. Some varieties are less excitable than others, a fact which I have frequently proved. It is a very rare occurrence for the Enfield Market to “bolt,” even when sown early. Atkins's Matchless may also be taken as a very good representative of the small early section, that cannot easily be beaten for general purposes; and this season the two kinds I have named are as free from runaway plants as usual, which is more than can be said of some of the other kinds. The best way in which to treat the runaways is to cut the tops and use them; pull up the stems, and plant others from the reserve seed-bed; or, if they are in greater numbers than can be used at once, dibble in the fresh plants beside those which they are to replace. No doubt this has been an exceptional season, and the only way to be prepared is—in the matter of Cabbages and Cauliflowers—to make two or three sowings at intervals of eight or ten days, and to give the preference to such varieties as we have proved under all conditions to be trustworthy, giving due weight at the same time to the latitude of each place, and its influence upon the climate and other conditions relating to growth. E. HOBDAV.

Spent Tan as Manure.—This has been recommended by several correspondents of THE GARDEN as a manure, and in different ways. In a somewhat dry state I find it very valuable in absorbing liquid and gaseous matters when mixed with half liquid manure. In this way the manure is deprived of its offensive appearance and smell,

while its best properties are preserved. This mixture, applied as a top-dressing during the winter and spring months to the ground on which Cauliflowers and Cabbages are grown, produces a wonderful effect, and by its assistance I am enabled to grow fine, succulent examples of these vegetables, as well as Brussels Sprouts, Savoys, &c., on soil extremely thin and poor, and which produces very poor specimens if treated in the ordinary way. When it can be obtained in quantities from the tan works, it makes one of the best and cheapest materials for mulching known; but it is decidedly preferable to use it in a decayed state only. It may not be generally known that fresh tan and stable litter mixed make a hotbed very much superior to stable-yard manure alone, and even superior to one of litter and leaves; for Cucumbers and Melons I always use tan and litter in equal proportions, and I find that the mixture suits them admirably.—ALEXANDER HONEYMAN, *Hope Park*.

Gas Lime (see p. 199).—I have found that if I use gas lime in too large a quantity, it kills all vegetation for the year during which it is applied, and I believe all the wireworms and slugs as well—a purpose for which it was principally intended. A covering of it, half-an-inch in thickness, would probably do no harm, letting it lie on the surface a week or two before digging it in, and then mixing it well with the soil. The best and safest way, however, of using gas lime is mixing it with a large proportion of soil, and letting it lie for a year in a heap, and then using it as a compost for top-dressing light soils, or for digging it in strong soils, in order to disintegrate them.—WILLIAM TILLERY, *Welbeck*.

Pearson's Plan of Glazing.—We are surprised to learn (see p. 21) that the breakage by frost has been considerable in houses glazed with glass cut as recommended by Mr. Pearson, and think that it must be the result of either the glass being improperly put in, or its not being thoroughly annealed. Since this system of glazing was introduced about ten years ago by the late Mr. J. R. Pearson, we have always adopted it for the roofs of houses which we have built, and it has given universal satisfaction. We make the glass overlap a quarter of inch; more than this is useless, and causes breakage in winter or affords a place for dirt and conservæ to accumulate in summer. Much, however, of the breakage said to be caused by frost, is the result of the glass being fitted in too tightly between the woodwork, when it is of course broken if the latter swells at all with damp. We are sure that not only will there be less breakage in houses properly glazed on this system, but that the houses themselves will last much longer, and we strongly recommend our readers to adopt it.—FOSTER & PEARSON, *Beeston, Notts*.

ROYAL HORTICULTURAL SOCIETY AND GUINEA FELLOWSHIPS.

HAVING on the 10th written a "last" letter on this subject, I hardly venture to trouble you with another; I believed that the matter would have to rest for a considerable time, but circumstances have changed. The day after my letter was sent came an answer from the President. His Lordship's accident had prevented his getting up to the Council. His views as to the policy of the Society in the future are, to my mind, entirely satisfactory. Then there came a well-known amateur horticulturist from Clifton, who considers that it is so great a gain having the guineas admitted in any shape, that we ought to be satisfied for the present, and to make the most of what we have got. Then a good representative of another section of horticulturists, Mr. Gilbert, gardener to the Marquis of Exeter at Burghley, wrote exactly to the same effect in a contemporary. Both these opinions carry weight. Some of our correspondents will not join the present Society; others will not join it while it has the maintenance of the garden at South Kensington; but I believe that by far the largest number will trust to us on the spot, knowing that our only object is the promotion of horticultural science, and will act as advised. I think if the Fellowship, with a vote for those living outside London had been proposed at the general meeting, it would have been adopted, and I take great blame to myself for not having thought of this. It is now too late for this year, but I think, and have reason for thinking, that if a large number of country horticulturists will join the Society on the terms now offered—that is, membership without a vote, for a guinea subscription—that we have good hope of getting the vote hereafter. Happily, the tickets attached to the two-guinea subscription having now been made transferable, there is sufficient difference in value between this and the non-transferable ticket given to the guinea subscribers. On the whole, then, I would advise those who have given their names as would-be guinea Fellows to accept the guinea membership, and think that both the influx of a large body of country horticulturists will strengthen and improve the Society, and besides that, their guineas will be applied to horticultural objects. Those who come up to London will have full consideration for their money, as, judging by the shows on the days of the committee meetings which have been held this year, both leading nurserymen and amateurs have determined on exhibiting so many Orchids and other beautiful flowers and plants, that the shows now held the first and third Wednesday of the month are

well worth the subscription. I have only to add that it is to be hoped that those who come in will bear in mind that the greater the number of guinea members, the greater consideration they will receive, and that all will try and influence their friends to follow their example. In this neighbourhood, where our canvass was completely successful, the principal argument used was, "You take delight in your garden, we only ask a guinea subscription; will you not give this (or find a substitute) to promote the science which improves gardens?" Now that Mr. Veitch has set the good example of opening a list for Fellows and Guinea Members, it is most desirable that other nurserymen—not only in London, but in the country—should follow his example; they would get their reward. Horticulture cannot be promoted without at the same time increasing the demand for plants.

Heatherbank, Weybridge Heath.

GEORGE F. WILSON.

Wimbledon Gardeners' Improvement Society.—The last meeting of the season of this association was held on Monday last, when Mr. Ollerhead read another portion of his paper on Vine culture, which created considerable discussion, particularly as to airing, setting the fruit, and watering the borders. At the close of the meeting a vote of thanks was accorded to Sir Henry Peck for the interest which he has taken in these meetings. This association is the parent of what is termed the Wimbledon Club Society, that has been established at the village Institute, the members belonging to which at the present time number about seventy; they meet in the Lecture Hall every fortnight for debate, and, apart from discussions, they have established a circulating library consisting of 130 volumes.

OBITUARY.

We have to announce with regret the death of Mr. Thomas Dickson, an event which occurred on Friday morning, the 23d inst., at Upton, Chester, in the forty-second year of his age. The deceased was the youngest son of the late Mr. Francis Dickson, the founder of the well-known firm of Messrs. F. and A. Dickson & Sons, of which Mr. Arthur Dickson is the head. In private life Mr. Thomas Dickson was much respected, and his loss will be felt by a large circle of friends. Until recently he took an active part in the management of the nursery department of the business.

NOTES AND QUESTIONS—VARIOUS.

The Wallflower as an Indoor Plant.—I have lately been pleased to see how well the Wallflower does in cool, well-lighted windows, and I recommend it to those interested in advancing window plant culture among the poor. In one small house I entered the odour was delicious that came from a fine Wallflower growing in a rough wooden box.—J. E. ELKINGTON.

Fruiting of *Ruscus androgynus*.—Growing on the back wall of the conservatory here was a large plant of *Ruscus androgynus*, which I was obliged to pull down. At the very back of the plant I found a single fruit. It never fruited here before, and from inquiries which I have made, I believe it to be the first time in which it has fruited in this country. Perhaps some of your correspondents might know of its having fruited before.—F. W. MOORE, *College Botanic Garden, Dublin*.

Hip-roofed Houses or Pits.—Permit me to ask Mr. Groom (see p. 19) to give the dimensions and a section of the pits lately erected by him at Henham. I am of opinion that for general purposes houses or pits of the shape alluded to by him are the most useful that can be put up, especially if sunk below the ground-level somewhat. When put up by a practical man like Mr. Groom, a few notes as to how such houses are managed, are sure to be useful.—C. J. H.

Manuring Raspberries.—Those who wish to grow good Raspberries should do as the market-garden growers are now doing—give their plantations a heavy mulching of rotten manure, which will shortly be carefully pricked in with a fork. The value of this practice is apparent when the enormous crops which market growers obtain are taken into consideration, and these even from plants growing under fruit trees.—S.

Large-fruited Almond (*Amygdalus macrocarpa*).—Well-established trees of this are now very attractive in Mr. Parker's Nursery, at Tooting. The fully expanded flowers which are pure white, with golden-yellow-tipped anthers, are as large as a crown piece. This is one of the most showy varieties of Almond, small sprays covered with blossoms being very effective when used among other flowers in vases or bouquets. Small plants are equally as floriferous as large ones, bearing blossoms and buds in great profusion on every young twig. C. S.

Vines Late in Breaking.—I have a Vinery under my charge in which six different sorts of Vines were planted four years ago in a well-made border; but neither Lady Downes nor Muscat of Alexandria seem inclined to break. What is the reason? I started them a month ago. The names of the Vines are Buckland Sweetwater, Black Hamburg, Black Alicante, Muscat Hamburg, Muscat of Alexandria, and Lady Downes.—WM. PALMIST. [In the list of Vines planted, the two last-named varieties, viz., Muscat and Lady Downes, are generally very slow in breaking, and if not done so, should have been planted in the warmest part of the Vinery. There need yet be no fear of their breaking, provided nothing is wrong at their roots; and I should bring them down from the rafters, and keep them in as low a position as possible, syringing them daily. I have a large Vinery in which Muscats, Buckland Sweetwaters, Trebbiano Hamburgs, and Alicante are planted, and the Muscats and Trebbianos were at least a fortnight later in breaking than the others.—W. TILLERY.]

National Rose Society.—In our last week's number it was stated (see p. 23) that £25 were to be awarded by this Society in prizes. It should have been £20, the cypher having dropped out in the passage of the paper through the press.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES OF THE WEEK.

ROSE SAFRANO.—Two plants of this Tea Rose, on the back wall of a lean-to Vinery, have been greatly admired by every one who has seen them during the last three weeks. They are on their own roots, were planted two years ago, and at the present time each Rose covers a space of about two square yards. They have never ceased to bloom, more or less, since last September; and I do not think there was a week during the winter in which I could not have supplied a few buds. The Vines were started early in January, and at that time the Roses were slightly cut back, thoroughly cleaned with soap and water, and replaced on the wall. In a few weeks they commenced to "break" from almost every eye, and for the last three weeks they have been, as I have stated, covered with blooms, which have come in very usefully for Easter. I have cut over six dozen since Friday last, and there are many more still to cut. Another tree of the same variety which is on the back wall of a Peach-house will be coming into bloom in about a fortnight, and will keep up a supply of cut Roses almost until those in the open air begin to expand. The great merit of this Rose is that it is easily forced, and is seldom or never affected with mildew, though owing to the nature of our soil, we are very much troubled with this fungus. I top-dress annually with about 2 in. of equal parts loam and horse-manure, a mixture which is applied more for the benefit of the Vine roots than the Roses; and as they receive copious supplies of water, both overhead and at the roots, we are seldom troubled with insects.—H. H.

THE PARIS FLOWER MARKETS.—In addition to the white forced Lilac, very small plants of the Persian Lilac are now seen in the Paris flower market. They are not more than 15 in. high, and are full of flowers. The old Bottle-brush plant (*Metrosideros*) is grown for the markets of the French capital, and is very bright and distinct from the other flowers. Cactuses of the Ackermanni type are also grown for the sake of their large flowers. Prettiest of all, however, are the small oval baskets crammed with large flowering Pansies, which never look happier than in these simple baskets. There are four principal flower markets (not to mention various minor ones), each market being held two days a week. An immense quantity of flowers is produced for these markets, which are very interesting at all seasons. They recall Mrs. Browning's lines:—

Went out at early morning, when the air
Is delicate with some last starry touch,
To wander through the market place of flowers
(The prettiest haunt in Paris), and make sure
At worst that there were Roses in the world.

TWO GOOD DAFFODILS.—*Narcissus Horsefieldi* and *N. Empress* are two of the best Daffodils now in bloom. The first-named variety was raised by a poor Lancashire weaver about twenty years ago, and is a large and fine form of the white, golden-crowned *N. bicolor*. *N. Empress* is a seedling raised by the late Mr. W. Backhouse, of Walsingham, and is undoubtedly the finest of all the bicolor section of *Narcissus*, having stout glaucous leaves fully an inch broad. As seen in masses just now in Mr. Barr's and Mr. Ware's collections of hardy bulbous plants, these plants are the most stately and beautiful of all hardy flowers.—B.

GARIBALDI STRAWBERRY.—Good punnets of this Strawberry are still being brought into Covent Garden market by Mr. Bennett, of Rabley; the fruits are of fair size, and equal in colour to Strawberries in May. The plants on which they are produced were grown from runners last summer brought gradually on, and some 200 of them are now loaded with fruits which, when placed side by side with Keen's Seedling, show a decided advantage both as regards cropping qualities and appearance.

ILL EFFECTS OF MARCH FROSTS ON SPRING FLOWERS.—The frosts of last month have been severe in Worcestershire. We began with 15° on the morning of the 1st, and have since had 12°, 11°, 10°, and 8° frequently. The damage to spring-flowering plants has been considerable; early Primroses and *Myosotis dissitiflora* have had their blooms quite destroyed, while tree *Pæonies* appear to have been killed outright in exposed situations. I have also lost some fine plants of *Aquilegia cœrulea*, which had wintered only too well, and started into growth. Herbaceous *Phloxes* have also suffered, while Pansies and *Violas* are looking very miserable. I consider *Myosotis dissitiflora*

quite needless here—warm February days quicken it into precocious bloom, which March winds and frosts promptly destroy. The *Aubrietias* have gone through the ordeal bravely, and are loaded with buds just on the point of expanding. Of Pansies Cloth of Gold has behaved the best. Wallflower Belvoir Castle has also defied the frost, and promises to bloom abundantly.—H. M.

HOTBEDS IN FLOWER GARDENS.—At present as the leaves and various protecting materials are being taken from the half-hardy plants in the Parc Monceau, they are collected into some of the large beds (emptied of earth), and formed into gentle hotbeds on which to plant the large-leaved *Caladiums* by-and-by. The fact may be worth recording in the interest of those cultivating such plants in the open air; but we are convinced that there is no real progress in the so-called sub-tropical gardening. There are thousands of beautiful plants perfectly happy in our climate without hotbeds or expense. The plants, moreover, have as graceful or as stately foliage as any other, therefore they demand our best attention, and will best repay it.—V.

ELÆOCARPUS DENTATUS.—A specimen of this ornamental spring-flowering greenhouse shrub, so rarely to be met with in gardens, is now finely in flower at Messrs. Osboru's, Fulham. The plant, which is growing in a large pot, is 6 ft. or 8 ft. high, and 3 ft. or 4 ft. through, and is literally covered with fringed white, bell-shaped blossoms, which last in bloom for a long time. It is a plant that well deserves much more attention than it at present receives.

ILLICIAM RELIGIOSUM.—This somewhat rare evergreen shrub is now in bloom on a wall in Messrs. Veitch's nursery at Chelsea. Its flowers, which are of a creamy-yellowish colour, are borne thickly in small clusters of twos and threes up the sides of the branches, and form a fine contrast with the glossy green leaves. In Japan, where it is associated with religious ceremonies, it grows to about the size of an ordinary Cherry tree.—S.

AKEMIA QUINATA.—This has been flowering beautifully here in the open air during the last fortnight, and promises to continue in good condition for several weeks to come; its usual time of flowering is April. It is one of our best evergreen climbers, and although generally classed among greenhouse plants in nurserymen's catalogues, it is quite hardy. The flowers are also sweet-scented, and the foliage handsome. It should have a south aspect if it be expected to flower well. It occasionally, but rarely, produces seed in large, fleshy, singular-looking pods.—JOHN GARLAND, *Killerton, Exeter.*

STREPTOCARPUS SAUNDERSI.—This is rarely met with in private gardens, and indeed it does not appear to be common even in London nurseries. A plant of it in Mr. Parker's nursery at Tooting is now bearing several spikes of flowers, which are pure white with a delicately-tinted sky-blue throat. Among Gesnerads this certainly deserves a permanent place.—W. S.

CLEMATISES IN CONSERVATORIES.—Amongst Clematises for conservatory decoration none surpasses in beauty or usefulness the double-flowered pure white *Lucie Lemoine*. Several plants of it, trained as pyramids, are now finely in bloom in Messrs. Veitch's nursery, Chelsea, where, associated with kinds possessing other colours, they are very effective. For the spring decoration of the conservatory or greenhouse such plants as this are invaluable.—H. C.

PRIMROSES IN EASTER DECORATIONS.—Amongst all the flowers now so extensively employed for church decoration at Easter, none are more effective than common Primroses, when tastefully arranged in bunches associated with their own foliage, and inserted in beds of green Moss. Seen under such conditions they have a natural and therefore pleasing effect, unsurpassed by more costly materials. For flat decorations such as those used in windows, or as an edging to the font we use them largely, and if the Moss be kept damp, they last in good condition for a long period. This season they are exceptionally early, fine, and abundant.—JAMES GROOM, *Henham.*

GAUNTLET PELARGONIUM AS A WALL PLANT.—The back wall of a lean-to plant-house in the Rabley nurseries covered with this *Pelargonium* now affords an interesting sight. The plants are grown in pots plunged in the border into which the roots have penetrated, from which they derive their principal support. All the attention which the shoots receive is simply that of tying in new growths as fast as they are made, and occasionally removing decayed leaves, and nearly all through the year they are a mass of buds and blossom, the latter large and remarkably bright in colour.—J. S.

CACTI AND SUCCULENT PLANTS.—Doubtless many who have seen and admired the pretty miniature specimens of Cacti and other succulent plants sold in Covent Garden and elsewhere have wondered whence they came, seeing that they are not to be found at ordinary nurseries. The fact is, this branch of gardening industry was a monopoly, having for years been carried on at 73, South Row, Kensal

New Town, London, and also in Paris by the late M. Pfersdorff; since the death of the latter the business has been taken up by Mr. J. Croucher and Mr. H. Boller, both of whom are adepts in the culture and nomenclature of these singular plants. Mr. Croucher is well known as our best practical authority on succulent plants of all kinds, and we hope his new venture, as regards their sale, will prove to be a successful one.—B.

MAGNOLIAS AT FULHAM.—Several specimens of *Magnolia conspicua* may now be seen in full bloom in Messrs. Osborn's nursery at Fulham. They are from 12 ft. to 15 ft. high, and as much through, and their blossoms, which may be counted by thousands, are deliciously fragrant.—J. S.

BEGONIA SAUNDERSI.—This *Begonia*, which is probably unsurpassed by any of its class for spring flowering, does not appear to be nearly so much grown in private establishments as might be expected. Fine bushy plants of it struck from cuttings during the summer are now used in the Royal Aquarium and are literally loaded with drooping trusses of pink and scarlet blossoms, and, associated with *Spiræas*, *Deutzias*, and other flowering plants, are exceedingly effective. For the decoration of the conservatory this *Begonia* can scarcely be too extensively grown.

MAY BLOSSOMS FOR EASTERTIDE.

Of all the flowers that enrich Easter decorations May blossom is to my mind the most pleasing and suggestive; it is simple, pure, sweet. The size of the flowers bunched up so admirably for decorative purposes, with their chaste greenery of tender foliage, is all that can be desired. Hawthorn bloom is in my opinion superior for Easter decorations to Camellias (that suggest winter rather than spring), *Rhododendrons*, *Azaleas*, or other gorgeous tropical flowers. But how, it may be asked, can May be had in flower at Easter? Few things can be easier. The May bears gentle forcing well; plants from 3 ft. to 6 ft. in height should be potted from the open ground, say in 12-in. pots, at the end of October or early in November. Any soil will suit them, as the Hawthorn is by no means particular in that respect; a sandy loam is as suitable as any other. After potting, water thoroughly to consolidate the soil and settle the plants in their pots. Place them, if convenient, in a sheltered situation against a fence or wall and attach them firmly to such support, or place a stout stake to each to keep tops and roots immovable in one position. Mulch the surface of the soil over with an inch or two of rotten leaves or litter. This is to encourage the formation of fresh roots, and also to protect them from frost. This may seem superfluous with such a hardy plant as the May; but it should be remembered that the hardiest of plants are only hardy under natural conditions. Hence May in pots should have a frost-proof covering not only over the surface, but also round the sides of the pots as the weather becomes severe; this last is afforded by plunging the pots to their rims in the ground or in some frost-excluding material. These matters form important preparatory steps to the safe forcing of the May. The plants may be introduced into heat in batches of half-dozens or dozens from the month of December to March, according to the quantity and season at which the blossom is required. For all the earlier batches two months must be allowed for getting them into bloom; for midseason supplies, six weeks will be ample; for later ones, three weeks or a month will suffice. Such are the wide differences in regard to time between forcing out of season and urging on plants a little in season. It will also be seen that May does not like sharp forcing; in fact, it will not withstand it. A dewy atmosphere, with a temperature ranging from 55° to 65°, suits it best. As soon as the plants are in flower, they should be removed to a cooler temperature; a conservatory or greenhouse suits them admirably. They should, however, be dewed overhead at least night and morning, to keep them fresh. The May does not become tarnished by clear water, as some delicately-coloured blossoms do. The plants also last long in bloom in cool rooms, halls, and on staircases. Standard, pyramidal, or bush May trees are also admirable for other kinds of decoration and prominent positions in churches. The flowers have also good staying qualities when cut, especially the double ones, which are admirable for dinner-table designs, bouquets, and wreaths, and as for button-holes, about three sprays of Scarlet May as a base for a sprig of *Forget-me-nots* is as near perfection as may be at Eastertide. After flowering, plunge the plants in an open situation out-of-doors, sinking the pots 2 in. below their rims. This saves much watering in summer, and keeps the roots cool; in fact, unless during abnormal droughts, the plants will need no water at all when in the open air. Plants treated thus have been in the same pots for about six years, and have been forced every year, and still they are as healthy and more floriferous than ever. Of course, they flower better the second year than the first, as they are better

rooted and more thoroughly established. But Thorns in pots continue healthy for many years in the same soil without any manure-water or other feeding. No insect ever attacks them nor mildew, and they yield a maximum amount of pleasure at a minimum expenditure of labour and skill. I have often wondered that the Hawthorn is not universally forced for Easter and other decorative purposes; it is as worthy of this distinction as the Lilac, the *Deutzia*, the Lily of the Valley, or the Rose.
D. T. FISH.

Mistletoe on a Scotch Fir.—I have seen Mistletoe, I think, growing on all the trees enumerated lately by your correspondents except the Oak, on which I have never been fortunate enough to find it. The Scotch Fir, however, is not among the trees mentioned on which it grows, and it may interest some of your readers to know that I gathered it on this tree many years ago in the Bavarian Tyrol, between Munich and Innsbruck. It grew by the roadside in one spot, in an abundant colony; the plants were large and vigorous, and evidently in a thriving condition. I was amazed to find an old friend, which I had always been accustomed to see fed on the sweet juices of Apples and Poplars, thriving equally well on the anstere turpentine of a Conifer. To prevent any chance of mistake, I cut off a branch and brought it home with me. It was a curious example, showing the perfect union of the two plants.—J. D. LLEWELYN, 39, Cornwall Gardens, Queen's Gate.

Hybridizing Alpine Silenes.—Having obtained from Messrs. Backhouse a plant of the charming *Silene Hookeri* imported by them from Oregon, it struck me as a plant capable of improvement in its constitution (for it is not a vigorous plant), and even in the beauty of its flowers. I thought, if I could effect a cross between it and the scarcely less beautiful and much hardier *S. Elizabethæ* from the Tyrolean Alps, with its large rose-coloured and more compact flowers, I might in the hybrid effect an improvement on both parents. I accordingly set to work and was not disappointed in the result. The cross took, and from the hybridized seeds I succeeded in raising one plant, which partook more of the habit and aspect of the male parent, *S. Elizabethæ*. Of this hybrid I was very desirous to procure seeds, and to this fact I beg to direct attention: I found that with its own pollen it was sterile, yet while the male property was deficient, the female organ had all the appearance of being perfect. I then tried it with the pollen of *S. maritima*, and from this cross I obtained two finely-ripened seeds, which I have sown, but which have not yet vegetated. I tried a further cross on the same plant, with the pollen of the small *S. acaulis*, but though the seed-pods swelled, and promised seeds, none came to perfection. The experiment in its result is quite new to me, as I never before found the potency of the female to outlive the potency of the male organ.—I. ANDERSON-HENRY.

Durability of the Flowers of *Poinsettia pulcherrima plenissima*.—When a few weeks since I wrote of the possibility of having this splendid plant in bloom from November to May, Mr. Gilbert, of Burghley, asserted that I had been drawing on my imagination for my facts. The context of my note showed that I then anticipated such permanent flowering from a succession of plants, but it now appears as if one plant might flower the whole time from November to May. Our best plant flowered in October and faded in January—this was pretty well. Among several small cuttings one flowered in November, and is now (April 2) still in bloom, and looks as if it might go on to May. As regards colour I still adhere to the fact that *P. pulcherrima plenissima* is brighter than the single kind, but its habit of blooming for so many months in succession will probably prove a more valuable characteristic than that of heaping bracts upon bracts, which has earned for this valuable variety the name of *P. p. plenissima*. I am inclined to agree with another writer in THE GARDEN, who anticipates having *Poinsettias* all the year round by the aid of this last and best addition.—D. T. FISH.

Home Culture v. Imported Roots of Lily of the Valley.—My object in sending the Lily of the Valley spikes, to which you allude (see p. 246), was to show that fine roots of this favourite flower can be grown in England if nurserymen and others, having suitable ground for the purpose, would only take the matter in hand. Many tons' weight of clumps and bulbs of Lily of the Valley are imported every year, for which we have to pay foreign growers, besides a large sum for transit; surely, therefore, it is only consistent with common sense that the home culture of this flower should be as much as possible promoted. Nevertheless, the matter seems to be entirely overlooked, at least as far as any satisfactory result is concerned. The home culture of this Lily would, I feel sure, prove remunerative to growers, and therefore we ought not to send money abroad for what we can easily produce ourselves. I would strongly recommend some of our nurserymen to give the subject their serious consideration.—HENRY A. WOOD, Willow Lodge, Mitcham.

IVY AND ROCK SHRUBS ON THE MARGINS OF ARTIFICIAL WATER.

The planting of the banks near artificial water offers an opportunity for securing beautiful effects which cannot be too carefully studied. The contrast with the water, and the certainty that from across the water at least the result of tasteful planting will be seen (and not obscured by chance, or unrestrained growth, or unwise planting), should encourage the planter to devote his best attention to the subject. One of the happiest effects we have lately seen was afforded by Ivy on the rocky margin of well-formed artificial water, in combination with rock shrubs and hardy Cupressus and Junipers. Sheets of luxuriant Irish Ivy fell over the rocks and carpeted the banks. This, in pure air, is beautiful at all seasons, but especially so in winter, when it forms such a welcome contrast to the dismal dug surface on which so many of the beautiful shrubs in our gardens have to stand through most of the year. Among the evergreen rock shrubs and low Conifers suitable for such positions, a few good deciduous early-flowering shrubs may be placed with charming effect; such, for example, are the Japan Pyrus (*P. japonica*) and its varieties, the Forsythias, the large white Chinese Magnolia (*M. conspicua*), and other fine early-flowering kinds, and, in fact, any early-flowering showy shrubs. The attractive Chinese, Japanese, and Ghent Azaleas, and the Rhododendrons are, of course, admirable for such positions; but there is a peculiar fitness in placing the very early-flowering kinds on these well-carpeted green banks, where the surroundings are not so winterly as they are often, though needlessly, made in gardens.

TURFING LAWNS.

LAWNS are mostly worn through rather than worn out, and nothing looks worse than a patchy lawn. Such lawns are more common in small gardens than in large ones, and for this reason—that the smaller the lawn generally the more it is used. Grass, however, must be kept in good order, and wherever it is worn through the best remedy is fresh turf. How anyone with a small lawn can endure the operation of breaking it up, top-dressing, and sowing fresh seeds—as frequently recommended as a means of renovating old lawns and converting them into as good as new—passes comprehension. Why these processes cost more than the removal of the old turf and replacing it with new on the instant; and by doing this the lawn is sightly and serviceable at once. A score or two of tough new turves, 3 ft. long and 1 ft. wide, will often suffice. The entire worn piece should be taken up, and the new turves as far as possible placed in those particular spots where there is most wear and tear. Then all the best pieces of the worn turf can be cut or pulled out, and laid down afresh. If the turves be cut 1 in. or 1½ in. in thickness, they will hardly feel their removal, and will begin to grow and lay hold of the soil at once. Should the lawn be poor, the opportunity of removal should be embraced to place an inch or so of better soil under the turves. There is no better soil for this purpose than common kitchen garden earth that has been fairly cultivated for a series of years, and moderately manured.

And even should no better soil be available, a little fresh material should always be given on the removal of the turf in all cases where the Grass has not flourished. The soil gets Grass-sick, and a change of soil, if only an inch or so in depth, often puts quite a new face on worn-out lawns. But there are many lawns too rich as well as too poor, and what is more singular is, the rich lawns often wear through first. The Grass becomes rank and strong, and is easily broken down and worn through. The root fibres of the Grass never bind themselves into an impenetrable mass in such soils. Each blade has a root-stem merely, more like a tap-root than anything else, and there is a great want of root-fibre to knit the Grass into a tough, durable texture. The best means of renovating rich lawns is a change of surface and of turf. A layer of barren sand, 2 in. or 3 in. in thickness, under the turves, is a perfect cure for thin and easily worn through rich lawns. The turf forms a perfect network of roots as it grows over and through the sterile layer.

Many lawns are also ruined by meaningless inequalities of surface. Large lawns may rise and swell into bold elevations, and sink again into easy slopes, running into charming valleys,

like, in fact, the heavings of the ocean as it sinks to rest after a storm. But though not all level, lawns should all be even on the surface. All little erratic prominences should be knocked down and all equally unmeaning hollows filled up. This evenness gives beauty to the elevations and depressions of sloping lawns, and is even more essential to those that are level. The shaving off or filling up of those trifling inequalities not only adds immensely to the beauty of lawns, but likewise proves a capital means of renovating those that are worn out. The entire surface under the turf being moved by the levelling, the roots of the Grass find fresh soil, and the turf is improved in



Cascade and Ornamental Water Margin.

consequence. The mere removal of the turf and the loosening of the soil under it renovate the Grass in an extraordinary manner at times. This has been a favourable season for such undertakings. The amount of rain has rendered the surface of the lawn soft and the turf easy to raise with the spade. The moisture of the earth has caused the Grass to grow again at once, while the yielding nature of the wet soil has enabled the roller to do its work with tenfold its ordinary force and efficacy.

Of course, during these different processes of renovating lawns opportunities will readily present themselves for the removal of weeds. When the surface is off, and the roots of Plantains, Dandelions, and Crowfoots are revealed, they might quickly and safely be touched with vitriol, which would kill them outright. The crowns of the roots of these and other weeds can also easily be picked out when the turves are off the soil. Advantage should, in fact, always be taken of all means of renovating lawns to clear them of all foreign substances at the same time. Lawns infested by worms can also be readily cleared of them when the turf is off. A good soaking of ammoniacal liquor will kill them when the turf is off. If this, or any mineral oils, or other substances be employed to kill worms, it may be desirable to have the turf

off for some days afterwards, to allow the strength of the worm-killers to escape. It is also safe practice to point over the surface before relaying the turf. Very small lavas might be flooded when the turf is off. This would make an end of insect pests, such as ants, slugs, and worms for years afterwards. Poor lawns, again, that could not be top-dressed, could readily be flooded with house-sewage or other manure waters. This would in many cases be as good, and infinitely cheaper, than a top-dressing of soil or manure under the turf. Another good plan of renovating lawns and also of keeping down worms and small slugs is to sow the surface of the lawn thickly with lime, soot, or fresh tanner's bark. These kill or deter the worms, and the first two form a valuable manure for the Grass roots as well.

The best season for these operations is from November to January. They may be performed up to March 1, or even later, but the benefits decrease with the advent of the new year, and the risk of partial failure at least is greater. When done before Christmas, the Grass runs together again at once after the laying of the turf; but if too late, the divisions between the turves will be so imperfect that a strong drought in summer will open them, which is ruinous to the appearance and enjoyment of a lawn. No doubt, copious waterings will prevent such evils; but waterings cost money, and there is no reason why money should be thrown away upon Grass lawns, which would have been perfect had the work of renovation or renewal been done before the new year, instead of late in the spring.

D. T. FISH.

LILY BULBS.

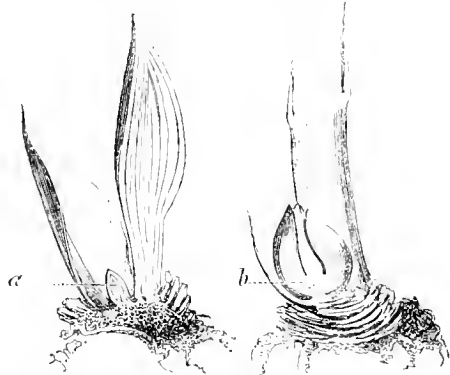
"DUNEDIN" has made statements in THE GARDEN respecting the anatomy of Lily bulbs which are certainly new to me, and I suspect to every one else. It is impossible either to deny or accept his statements as facts, much less the inferences which he draws from them, until we see in freshly-prepared specimens the process which he calls the development of the seed-bud into the flowering bulb of the following season. "Dunedin" would, I think, hardly expect many Lily cultivators—and I suppose there are some hundreds interested in this beautiful group of flowers—to sacrifice some dozens of their favourites in pursuit of science; yet how else can his statements be tested? The position, I take it, is as follows:—"Dunedin" has advanced some entirely new views, and on the strength of them has, he believes, upset many preconceived ideas about Lily growth, and in his early remarks been particularly severe on the want of "perceptive powers" of the unfortunate author of "Notes on Lilies," who early in 1873 contributed what was then thought to be a creditable addition to the stock of knowledge on the subject already extant. By-the-by, "Dunedin" did not begin his experiments to "trace the progress of the seed-bud till October, 1873." Since then knowledge has advanced, and the question to which "Dunedin" now offers a solution was asked by the same author in your pages (Oct. 23, 1875)—"Do Lily bulbs make fresh growth every year as does the Crocus? I submit this question for future decision." "Dunedin" did not then reply. But, apart from personal considerations, we want to know—is "Dunedin" right or wrong in his present reply to my question? The onus of proof lies, it seems to me, on his shoulders, and I propose to him to prove it thus to the horticultural world. Let a series of preparations, sections of bulbs showing the seed-bud in its several incipient, semi-developed, and fully-developed stages (in fact, the life history of the "seed-bud,") be put up in spirit or some other antiseptic fluid that will keep the specimens in a fresh, undecomposed condition for months at least, by "Dunedin," or under his supervision, and labelled with clear descriptions, so as completely to illustrate the views advanced, and let these be exhibited before the Royal Horticultural Society and there explained by "Dunedin," and afterwards be on view for a time in London, or be presented to the Museum at Kew, so that all interested may have an opportunity during the summer of familiarising themselves with the appearances on which these new views are based. Typical bulbs from each of the various groups of *Isolirion*, *Eulirion*, *Martagon*, and *Auxilirion*, in their various stages of development, should be exhibited, as these groups materially differ in

their appearance, growth, and treatment, under cultivation. If "Dunedin" will do this, he will render a great service to science as well as to Lily cultivation.

Colchester.

THE AUTHOR OF "NOTES ON LILIES."

— I have little to add to what was stated at p. 183 concerning Lily bulbs, but as the editor of THE GARDEN has kindly allowed me to examine "Dunedin's" specimens referred to at p. 269, I have ventured to sketch those which most clearly show the gist of the matter, as far as respects the "seed-bud."



(a) Axillary or "seed"-bud of Lily bulb as seen in January. (b) The same as seen in March, showing increase of size.

It will be seen at a glance that it is nothing more than one of the axillary buds which exist at the base of each scale in nearly all Lily bulbs; albeit, all but one or two of them are generally latent, yet it is nothing uncommon for three or four to develop themselves, as has been acknowledged. If "Dunedin" likes to call the axillary or root-stock buds of his Lilies "seed-buds," I believe he has a right to do so privately, but in justice to myself and other readers of THE GARDEN he should either use the terms generally employed, or fully explain those that he may use which are not generally employed by physiologists—of these the "seed-bud" is one—since, as shown by "Dunedin" himself, it is applicable to any of the axillary or scale-buds, which naturally develop themselves without becoming detached from the root-stock of the old bulb, and these have long been known as offsets. On referring to p. 209, "Dunedin" asserts, that the "seed-bud" and the "leaf-bud" differ very much, particularly in this, that the leaf-bud propagates the individual as well as the species, while the "seed-bud" continues the species, but not necessarily the individual." This, as I take it, means that the leaf-buds of *L. bulbiferum splendens*, for example, will reproduce that variety exactly, but that the "seed-bud" of the same plant is not certain to do so? If this be really the meaning that the sentence and its context below are intended to convey, I must say it is a statement which any one who has raised Lilies from offsets would not accept without proof, inasmuch as it is directly opposed to all the known laws of vegetable physiology. If "Dunedin" will again refer to my note (see p. 188), he will find that I say we have reason to believe that "Lilies not only become larger in the bulb but also more weighty without the assistance of leaves." To this "Dunedin" replies, that "It is, of course, at the expense of the substance stored up in the scales of the old plant;" but surely "Dunedin" must see that additional weight cannot possibly be obtained by the young bulb from this source; it is a mathematical impossibility; and as roots without leaves can only be of use in absorbing moisture, I infer that the absorption of water pure and simple accounts for the additional weight. At p. 261 "Dunedin" again asserts that *Lilium candidum* is no more an evergreen than any other species, whereas the reverse of this is a well-known fact to every Lily grower, seeing that the plant bears green leaves nearly all the year. At p. 188 Mr. G. F. Wilson remarks that "the bulb of *L. giganteum* unmistakably dies after flowering;" but both Mr. Wilson and "Dunedin" (who quotes the sentence on p. 261.) omitted to mention that previous to the decay of the old bulbs, *L. giganteum* throws off young plants in the shape of offsets, the plant dying only in the sense that an American

Agave or a Pine-apple plant dies, that is, after having reproduced itself viviparously; indeed, if the bulbs of *L. giganteum* did "unmistakably die" in the absolute manner inferred by "Dunedin," what would become of his "seed-bud" theory in that case? No possible good can come of wrangling over terms in nomenclature, and now that I am enabled to give definite sketches of the "seed-buds" described by "Dunedin" (see p. 260), I shall submit the matter to the attention and judgment of those most interested in the subject. F. W. B.

THE SEA-SHORE NARCISSUS.

(*N. CALATHINUS*).

This delicate little plant, one of the rarest of all the species of Narcissus, has just bloomed in the garden belonging to the Naval Hospital at Brest, whence M. Blanchard has sent me fresh specimens in flower. This Narcissus is found in the north of the Isle Drénee, one of the Isles de Glenans, a group lying southward off the coast of Finistère in Brittany. A variety of *N. calathinus* is also found on the mountains of Gerez, near Amaranta and elsewhere in Portugal, whence Baron Pavia sent specimens to Kew. The conditions under which *N. calathinus* grows naturally in Brittany are very peculiar; it is found only in patches on short Grass which is constantly moistened with particles of sea water or spray, carried thither by winds. The climate is constantly mild (there being no frost), and the plant seems to delight in a soil consisting of heath-mould and sea-salt, and in a constantly moisture-laden atmosphere. It does not succeed in the comparatively dry air at Brest, where rain falls 180 days in the year; and as the late M. Thuret failed to cultivate it successfully in his garden at Antibes, one may infer that something else besides a genial temperature is essential to its welfare. This Narcissus has often been introduced to this country, but it has rarely if ever flowered. The only cultivator indeed who has succeeded with it is M. Blanchard, who grows it under the protection of a frame. It is distinct from the *N. triandrus* of



Narcissus calathinus.

the "Botanical Magazine," vol. ii., t. 48, the latter being a variable and much more vigorous plant from the Pyrenees. The structure of the flower is nearly the same in both species, except that *N. calathinus* has a longer and larger cup. A wider range of specimens might, however, show them to be but forms of the same type, notwithstanding a somewhat different geographical distribution. The annexed engraving shows the general habit of growth assumed by this species and a detached flower about one-fourth its natural size. The bulbs are about an inch long and half-an-inch in diameter, bearing from two to five bright green leaves, each about 1 ft. in length and rarely more than one-eighth of an inch broad; in section they are acutely lunate with a double keel. The flower stems are as long or longer than the leaves, smoothly cylindrical, and each bears one or two flowers which are 2 in. or 2½ in. in length, the ovary and flower tube, the petals, and the cup, being about equal, or rather more than an inch in length. The petals are of a delicate sulphur-yellow inclining to white, the tube being yellow and the cup almost pure white. The plant when well grown is most beautiful, and, notwith-

standing its peculiarities, it well merits careful culture at the hands of all lovers of choice, hardy flowers who may be fortunate enough to procure bulbs of it. In some favoured, spray-moistened spots near the coast in Devon or Cornwall, it might succeed if carefully planted; or imported bulbs might be grown in pots of their native earth sheltered by a frame from which frost is carefully excluded. B.

Anemone fulgens as a Market Flower.—Is not this beautiful, early-flowering Anemone worthy the attention of market growers, as it could be made to produce a large quantity of blooms in a small space, and probably might easily be quickened into flowering, if good-established clumps of the roots were lifted early in winter and placed close together on a bed of leaves, or spent tan, or any material that would afford a gentle warmth? With a frame placed over them and thus protected from heavy rains and frosts, no doubt the blooms could be produced considerably earlier than from the open ground. Even in the latter case a considerable breadth of the roots planted up beneath the shelter of trees would yield a large quantity of flowers early in spring.—A. D.

Lilium giganteum and other Lilies.—As some of my gardening friends foreboded all manner of evil to Lily bulbs from the continued rain of autumn and winter, and as the shoots of most Lilies are now aboveground to speak for themselves, will you allow me to say that in the gardens here they are more than usually strong and healthy, and that blank spots are few and far between. A friend tells me that in his garden in Norfolk the treatment of *Lilium giganteum* is different from what we are accustomed to give it, and that it is most successful. The bulbs are planted at the side of a rich Vine border, which has had a heavy dressing of horse and cow manure. I am trying a bulb which he brought me up with a good dose of manure against some planted near it which are under the usual treatment.—GEORGE F. WILSON, *Heatherbank, Weybridge Heath*.

Wild Gardening.—I have just been looking over the "Wild Garden," but cannot find any mention of the Wood Spurge. Observing it in our clay copses last spring as being a very distinct and showy plant, I transplanted a quantity of it into our ornamental covers on slopes near the rides, and I am now quite pleased with it; the reddish-claret-coloured, terminal shoots, stems, and green flowers are quite showy and effective. I planted large quantities of the common garden White Lily last year in groups about the woods, but I am sorry to find that slugs or snails are devouring them in some spots, particularly in Grassy places, but where there is plenty of peat or leaf-mould they are thriving beautifully, and not at all molested. Colchicums are just peeping through the Grass; I ought to have a good show of these in autumn, for I planted fifteen or sixteen bushel baskets full last autumn.—G. B.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Narcissus minor and minimus.—Those who possess rockwork or narrow shrubby borders should not overlook these two Daffodils when bulb-planting time comes round. The latter variety is now especially attractive at Mr. Ware's, at Tottenham, where it grows in large patches on rockwork, and flowers abundantly, almost close to the soil.—S.

Calceolaria alexicanalis—This is the best outdoor Calceolaria with which I am acquainted, as it is generally exempt from disease, and it will succeed where others fail. It grows about 18 in. high; its flowers are pale yellow, and it is very suitable for back rows in borders or centres of large beds. It remains in flower late in autumn, and as to its spring treatment we have already planted it out in its blooming quarters.—A NORTHERN GARDENER.

Cypripedium spectabile Indoors.—Several plants of this Lady's-slipper are now in bloom at Kew. They are grown in pans, each of which contains five or six shoots, and although not very floriferous, the blooms are large and much more delicate than those usually seen out-of-doors, some of them being nearly pure white. As a pot plant for flowering early in the spring this showy terrestrial Orchid well deserves attention.—S.

Yuccas on Ivy.—In winter and spring one of the most satisfactory combinations that can be formed is that of Yuccas on a carpet of healthy green Ivy. It matters not whether the Yuccas are closely and picturesquely grouped, or placed at intervals over the Ivy, the effect is excellent. It would be even more charming when the Yuccas were in flower and the Ivy bore its summer growth.

Saving Stock Seed.—I was informed the other day by a large grower of Stocks for market, and who has an excellent strain of both the White and Scarlet Intermediate kinds, that the way in which he kept his strain true was by saving seed of each colour in every alternate year, and in no case to save seed of different coloured kinds the same season. This grower alone has now no fewer than 10,000 plants of Intermediate Stocks in 4-in. pots waiting to be shifted into 6-in. ones, and brought into flower for market.—J. W. S.

A WEST LONDON MARKET GARDEN.

NOTWITHSTANDING the quantities of small Salads of every description imported from France and the Channel Islands to our markets at nearly all seasons of the year, there are a few market growers near London who have turned their attention to the culture of Salads under glass during winter and spring, and who can apparently compete successfully with Continental growers as regards price and quality of produce. Through the kindness of Mr. Elliot, of Hammersmith, one of the principal growers of small Salads, I was a short time ago permitted to see whence came the hundreds of punnets of Mustard and Cress and other Salading which may be found at the present time in Covent Garden market. A large portion of the grounds, which consist of several acres, is occupied by span-roofed and lean-to ranges of glasshouses, each from 150 ft. to 200 ft. in length, and, in addition to these, there are about twenty ranges of pits, each containing upwards of fifty sashes.

Pine growing was formerly a speciality at this place, but now that there is so little demand for English-grown Pines in our markets, they are only grown in small quantities. The glass-covered pits therefore that were previously employed for Pines are now devoted to the culture of Cucumbers and Melons during summer, and in winter they are used for the culture of small Salads, Lycopods, Lobelias, Scarlet Pelargoniums, &c. Mr. Elliot is now directing special attention to Grapes, Salads, and Mushrooms, all of which he grows admirably. The Vines are planted about 2 ft. apart, in outside borders which are heavily mulched with manure and otherwise carefully tended. There has lately been erected a house 150 ft. long, with a northern aspect, and planted with Black Alicante. The Vines have made wonderful progress considering the time during which they have been planted, their canes are well ripened, and it is expected that they will do equally well as those in houses having a southern or eastern aspect, which many cultivators contend is indispensable to the production of well-coloured Grapes. Black Hamburg, Gros Colman, and Alicante are the only varieties grown here; they are never forced, but are allowed to advance naturally, a little fire-heat being applied when it becomes necessary, to dispel damp or prevent the tender shoots from receiving a check by sudden changes in the weather, should such occur. The different varieties come into use in the order named, and the aim being to produce fruit only of the best quality, high prices and fair profits are accordingly realized. The Hamburgs are generally fit for sale in August; Gros Colman in September, October, and November; and the Alicante in December and January.

Whilst the Vines are at rest, Scarlet Pelargoniums, Mustard and Cress, Tarragon, &c., are grown under them. Scarlet Pelargoniums are, for the most part, grown in 5-in. pots, but large quantities of them are also in 8-in. and 9-in. pots in good rich soil; they are kept well pinched back, in order that they may form bushy specimens, well laden with bloom, for decorative purposes during the London season; such plants as these last for a long time in good condition, and, when associated with others, their brilliant scarlet blossoms have a fine effect. Mustard and Cress are grown on the floors of the houses, which are parted off into beds. Every other day a portion is cut and another sowing made, thereby keeping up a continuous succession. After sowing, the beds receive a good watering, and are then covered over with mats, which are immediately removed when the seeds commence to germinate. Mustard and Cress are usually cut when they have attained a height of 1½ in. or 2 in., a long-bladed knife with a crooked handle being used for the purpose. With this in one hand, the operator cuts as much as he can support with the other hand, and about as much as he thinks will fill a punnet; he then takes it up with both hands and places it in an upright position in the punnet, and so evenly do practised hands perform this work that one would almost think the Mustard and Cress had grown in the punnets instead of having been placed in them. During January, February, and March, Mustard and Cress are fairly remunerative; but after they can be obtained out-of-doors, they are almost valueless as market crops. The bright blue Lobelia speciosa is also largely grown here; it is struck from cuttings in autumn, potted into 6-in. pots, and during the winter and early spring it is placed

in lean-to pits close to the glass. To these air is freely admitted on every favourable occasion, and on mild sunny days the sashes are removed. In this way compact-flowering, marketable plants are got ready by May. Mignonette is also grown in pots for cutting during winter and for furnishing saleable plants in spring. Stocks, too, are grown extensively both in pots and in beds in frames; those grown in the latter being sold for planting out, and the former for window decoration. Mint, Tarragon, Borage, and Mushrooms form important crops. To the former are devoted five long ranges of pits, the contents of which are brought on in succession, and yield a supply of green Mint from January until it becomes plentiful out-of-doors; during severe winters, Mint realizes good prices, but in very mild ones it can often be gathered out-of-doors as soon as from the last pit. Tarragon is grown in large pots placed about the Vineries; Borage, for a winter supply, is produced in temporary wooden frames protected from the weather by means of mats, &c., this being succeeded by plants raised in heat in spring, and planted out as soon as the weather becomes sufficiently mild.

Lycopodiums (consisting chiefly of *L. denticulatum*) are grown in 6-in. pots in pits close to the glass. They are never shaded until sunshine becomes powerful, and more sturdy or evenly-grown plants it would be difficult elsewhere to find. Old plants are divided into small pieces, four or five of which are put into a 6-in. pot, previously well drained and filled with good, rich mould; they are then subjected to a moist, warm temperature, and as soon as they begin to cover the pot enough soil is added to form a mound on the top. The plants soon root into this fresh soil, and, as they become established, they are copiously watered and given abundance of air and light. The best are picked out every other day for market. Plants grown in the way described above last a much longer period in good condition than those which are grown in damp, sunless places, at a long distance from the glass. When the weather is sufficiently mild for Lycopods to grow in unheated pits they are at once removed to such positions, and the vacant pits are filled with hot manure and planted with Cucumbers or Melons. The heating apparatus here is by no means on modern principles, a saddle boiler being supplied to each range. Mr. Elliot remarks that in these boilers he can burn any kind of rough fuel, such as cinders and ashes obtained from London mansions, and they are therefore in this respect the most economical. The whole of the houses and pits here are strong, well-built, and kept well painted, and cleanliness and order prevail throughout the whole establishment. Mushrooms are grown in ridges out-of-doors, and the ground here lying high and dry excellent results are obtained, and even in the bad season Mr. Elliot has had enormous quantities of first-rate Mushrooms. The remaining ground is very heavily manured during the winter, and deeply dug or trenched to prepare it for Lettuces, Endive, and other Salad crops during the summer. S.

Clearing Greenhouse Plants of Insects.—At this season of the year aphid and thrips are apt to be very troublesome, and, from the fact that many greenhouses attached to villa residences are badly constructed, an effectual fumigation by means of Tobacco-smoke in the ordinary way becomes somewhat difficult. My own house is a case in point: the roof is so loosely constructed that the smoke passes away through the openings before the insect pests are destroyed. I am, therefore, led to adopt a plan of my own. Once a week I put some soft soap and flowers of sulphur into four gallons of soap-suds, mixing all well together. The next process is to turn the plants heels upwards and immerse their heads in the soapy solution; but before doing this I prepare a circular piece of stiff card with a hole ½ in. in diameter, and a slit reaching from the central opening to the circumference of the card. This is then stretched so as to allow the stem of the plant to be surrounded, and by pressing the fingers of the left hand firmly against it and to the rim of the pot when the plant is turned upside down, no soil can fall into the mixture. By gently moving the head of the plant backwards and forwards in the solution, the leaves become cleansed of insects, and as a kind of soapy gloss clings to the leaves after they are dry, insects do not quickly infest them again. This suggestion is principally intended for amateur cultivators who may be placed under circumstances similar to those to which I have referred.—D.

HARDY FLOWERS IN LONDON GARDENS.

AMONGST hardy flowers now in bloom Squills, Daffodils, and Hepaticas, still keep in the foremost rank; Dog's-tooth Violets are also now at their best, and amongst them the white-flowered form (*Erythronium Dens-canis album*) is especially attractive. Snowdrops and *Iris reticulata* still remain in great beauty, and the variously-coloured Persian *Iris* is likewise flowering freely. The White Squill (*Scilla bifolia alba*), now finely in blossom, contrasts well with the blue-coloured kinds, as does also *S.*



Corydalis cava.

bifolia rosea; *Puschkinia scilloides*, too, is yielding abundance of delicate, blue-striped, white flowers in Mr. Barr's grounds at Tooting, where may also be found *Sisyrinchium album* in good bloom, growing on well-drained, raised beds. *Primula denticulata* and *P. pulcherrima* are now flowering profusely in sheltered situations, but owing to the late heavy rains their flowers are not so bright as they would have been had the weather been more favourable; these Primroses under glass at Tottenham are, however, all that could be desired. The lavender-coloured form of *Muscari botryoides* (*M. pallida*) is now blooming abundantly in Mr. Parker's grounds at Tooting, where *Aubrietia purpurea grandiflora* is also a mass of cheerful-looking blossoms. For edgings or tufts on rock-



Silene pendula.

Viola cornuta.

work, or other raised positions, this variety of *Aubrietia* is invaluable. The Star Anemone (*A. stellata*) is now abundantly in flower in London nurseries, and the White Wood Lily (*Trillium grandiflorum*), growing in moist, sandy loam is opening its blossoms in large numbers. Two rare varieties of *Polyanthus* are now flowering freely at Mr. Parker's, one is *P. platypetala*, a variety with semi-double purple blossoms, and the other *P. Viceroy*, a yellow-eyed, richly coloured kind; in an unheated conservatory or greenhouse these *Polyanthuses* would prove extremely useful. The graceful though not particularly showy *Ornithogalum nutans* is flowering freely in several London gardens, and the early Forget-me-not (*Myosotis dissitiflora*) is becoming very beautiful; where it is grown in beds, it just now resembles little meadows of rosy buds and clear sky-blue flowers. S.

THE KITCHEN GARDEN.

PLANTING ASPARAGUS.

THOSE who are making plantations of Asparagus would do well to notice how that operation is conducted at Argenteuil (see p. 246). The worst way of growing it with which I am acquainted is in the old-fashioned beds, which devour annually as much stable manure as would suffice to dress five times their extent of surface in other parts of the kitchen garden, and usually with anything but a satisfactory result. I grow single plants in a single row with an interval of 30 in. from plant to plant. Grown in this manner, without a second row near them, they are able to extend their roots as far as they like on either side; and they may therefore be allowed to stand nearer each other in the row than those do at Argenteuil. I was induced to try this method three years ago, from having noticed for the last few years a single plant which had come up self-sown near the branches of an old espalier Apple tree. This plant has never been dressed with manure of any sort, and I have observed that what was cut from it was always finer than the average produce of the beds. I took the hint offered me by this intruder, and have profited by it. My single row produced largely last year, and now it has received for the first time a top-dressing of manure. Along one side of the row there runs a wide path, and on the other is an ordinary kitchen garden border, and all that we have to attend to is not to dig or crop too near the row. An occasional dressing of salt, or soot and salt mixed, and rarely one of stable litter, will probably be quite sufficient to maintain the plants in full vigour for several years; but by growing them on this system we can change our ground as often as we like, and plant in other parts of the garden new rows when we think it is time for any of the old ones to be uprooted and destroyed. There are probably few plants that require root-room more than does the Asparagus; hence the impropriety of crowding it in beds, where, owing to the seedlings which are continually being produced, it has often to struggle even for existence. I have just put in a row of Conover's plants, one-year-old, which were raised here from seed.

Wing Rectory, Uppingham.

B. S.

DWARF KIDNEY AND SCARLET RUNNER BEANS.

THE dwarf Kidney Bean is one of the most useful vegetables grown as an out-door crop, and it is also most accommodating if cultivated under glass. It is very impatient of cold, and therefore a warm sheltered situation should be chosen for it. Crops of it are often damaged by being sown too soon; the second week in May is a good time to sow the first crop, and a second sowing at the end of May will furnish a supply till Scarlet Runners come in, after which the Dwarf Beans are seldom asked for. The latter should have 2 ft. between the rows, and 10 in. in the row, and the tall growers 2 ft. 6 in. row from row, and 1 ft. apart in the row; they like a good, rich soil that has been well manured for a previous crop, which is better than rank manure, in which the plants are apt to run too much to foliage instead of fruitfulness. In very hot weather they enjoy a good damping over the foliage about five o'clock in the evening through a fine-rosed watering-pot or garden engine. Such treatment strengthens the plants and prolongs the gatherings; it also obviates attacks from red spider, to which they are liable. For the first sowing Williams' Early Prolific is an excellent cropper and comes in early, and Pale Dun is a good kind for a general crop, with Canadian Wonder for large pods. Runner Beans require similar treatment to the dwarf kinds, with the exception of the distance between the rows, which should be 4 ft. apart and 1 ft. in the row. They can be grown with sticks in the same way as Peas, pinching out the points when they reach the top, or they may be run up strings. They are a very valuable crop for both the amateur and the cottager. They do not take up much room, and they can be run on strings against boards or a building, on which the old Scarlet, which is one of the best for general cropping, has, when in flower, a fine appearance. Even in some of the most confined town gardens may often be seen Scarlet Runners flowering profusely and bearing pods in abundance. JAMES SMITH.

Waterdale.

Seashore Seakale.—From three stools (or heaps, as we call them) I have just cut a boxful of excellent Seakale blanched by merely covering it with the shingle where it grows wild. Some of it is very fine, but the high tides, which we had about the new year, damaged a great deal of it in a great many places along the shore.—W. WATSON, *Englehurst, Fawley, Hants.*

Preserving Vegetables.—I should feel very grateful if any of your readers who would kindly inform me how Peas and French Beans may be preserved in tins or otherwise for winter use.—H. GILBERT, *Burghley.*

THE FRUIT GARDEN.

INFLUENCE OF EARLY OR LATE PRUNING UPON THE TIME OF BLOOMING.

It is to be regretted that this subject appears likely to drop before anything further has been adduced in support or otherwise of the opinions held by Mr. Fish (p. 151). Amongst the immense number of hardy fruit growers throughout the country there must be many cultivators who have frequently in the same seasons pruned a portion of their trees early and others late, and who are sufficiently observant to have noticed the different effects (if any) caused thereby. There is nothing in the whole range of gardening in this country that is of greater importance than hardy fruit culture. A late season of blooming is a matter of the greatest importance in securing a crop, as the further the season is advanced when the blooms expand, the less likely they are to suffer through the effects of frost; and if the supposition were correct that the time of blooming was retarded by pruning late, no matter how inconvenient it might be to defer the work, still there could be no question as to the advisability of doing so. By my communication in reply to Mr. Fish (p. 183) it would be seen that what I have observed in my own experience is directly opposed to the theory of the time of pruning having any influence on the time of blooming of deciduous fruit trees, although I have met with those who held that it had, but I always found that such opinions were based upon mistaken and hasty conclusions. One individual with whom I discussed the subject was of opinion that because early pruning accelerated the time of blooming in such things as Roses and Honeysuckles, and plants of a similar nature, it must, as a necessary consequence, have a like influence upon the fruit trees in question; yet such is by no means the case, Roses and Honeysuckles, especially the former, in mild winters, commence growing almost with the advent of the new year. These and other plants of similar habit make a considerable amount of wood and leaf growth before the flower-buds are at all perceptible, totally different from the fruit trees in question, the fruit-buds of which are formed the autumn previous, and which make no wood growth previous to the development of the flower-buds, which is the first effort that the trees make in spring. Another argument I have heard advanced in support of early blooming resulting from early pruning, is that by pruning the branches are reduced, and consequently the quantity of fruit-buds which a tree carries (the root-power being concentrated in supporting the reduced number of buds) induces earlier growth. Yet there cannot be a greater mistake than this; any one who has taken the trouble to examine the roots of the trees in question at different times through the winter and spring would find that under ordinary circumstances no root extension takes place until some progress is made in leaf development, the roots during that time merely acting as channels to supply the amount of water required by the heads of the trees. The first efforts at growth occur in the fruit-buds themselves, and these are wholly influenced by the temperature of the air and the direct action of the sun's rays. Many years ago I recollect a couple of very large, old, standard Pear trees of the same variety standing close together in a severe storm during December, and four-fifths of the head were blown completely off one, leaving nothing but a few of the lower branches. A diligent observer in matters connected with fruit culture at the time made the observation, "Now we shall see whether the reduced quantity of fruit-buds the roots have to support will in any way influence the time of blooming, and the time of the fruit ripening, and to what extent the fruit will be larger." There was not the slightest perceptible difference in the time of flowering of the storm-shivered tree and the one beside it left unscathed; as might be supposed the fruit was double the size, and took longer to come to maturity, the increased size evidently causing this. If by a reduction in the number of fruit-buds the roots acted earlier upon them, on the springs succeeding wet sunless summers, when comparatively few fruit-buds have been formed, we should see the bloom expand correspondingly earlier and totally independent of the weather; or in the case of two trees of the same sort standing side by side, as is

frequently seen—one in a fruitful condition, thickly studded with blossom-buds, the other furnished with comparatively few—then we should have the latter blooming earlier than the former; yet whoever saw such to be the case? From long and careful observation on this subject I feel convinced that the influence on early blooming, by early pruning in the trees in question, only exists in the imagination of those who hold the opinion that early pruning has this influence. I also think that horticulture is the reverse of being either scientifically or practically benefited by the advancement of such theories as this, unless those who bring them forward are in a position to substantiate them by something stronger than the arguments at present adduced.

T. BAINES.

EXPERIMENTS IN MAKING VINE BORDERS.

ALLOW me to say in regard to Mr. Hunter's experiment with leaves and cow-manure as a compost for Vine borders, that it will be interesting to learn by-and-by how the Vines behave permanently in such a compost. I venture to predict that the ultimate result of Mr. Hunter's experience will be that he will keep to the loam as the best staple for Vine borders. So far, the fact of the Vines rooting so readily in the fresh leaves and manure is not in the least degree "startling;" on the contrary, I should have been surprised had they refused to do so. The value of the experiment, should Mr. Hunter continue it, will consist, as I have said, in proving whether or not the Vines will continue to thrive in such a compost. No fact in Vine culture has been more frequently demonstrated than that Vine roots run greedily into and riot wantonly in fresh leaves and manure. For this reason, gardeners dare not neglect the frequent turning of the fermenting material on their Vine borders, for the Vine roots would take possession of it at once, and it could not then be removed without sacrificing a great portion of new roots. Many years ago I left a thick lining of fresh leaves and litter containing a large portion of horse manure upon a Vine border all the season without turning it (as the Vinery was going to be taken down and rebuilt as soon as the crop was cut), and when it came to be removed it was so permeated with roots throughout, and held together so, that it might have been carried away bodily. But with such instances cultivators are familiar. In fact, Mr. Hunter's experiment is not the first of the kind that has been made. At p. 67 of his book on the Vine, Mr. Thomson relates how he made an inside border of "hot fermenting manure and leaves," how readily and abundantly the Vines rooted in it, how it improved the Vines for a year or two, how he added to the border with the same material as the old subsided, and how the "sentence at one time recorded against the Vines had been revoked" for the time being in consequence of the success attending the experiment; but the Vinery in question was done away with eventually, and I believe Mr. Thomson's experience of a manure and leaf compost for Vines was not of a kind to lead him to alter his opinions on the subject of Vine borders as recorded in his treatise on the Vine.

As regards the bricks and mortar system of building up Vine borders of whole turves, described by Mr. Hunter as being expeditious, and as it does not appear to be of much importance to the Vines one way or the other, I do not see why the plan should not be always adopted when turf is used. We have put several Vine borders together here exactly as Mr. Hunter describes, but it was to save time, and the mortar in our case was represented by ground bones and night soil previously deodorized with loam. We did not expect any special advantage from the plan, for when we do use artificially-prepared composts we thoroughly mix the materials together. Still I cannot say that there is any difference in the Vines in the borders of both kinds, and we have them side by side, that is, borders made up of layers of whole turves and manure alternately, and others of turf chopped and mixed with manure in the usual way. If we once admit that manure may be applied to Vines, and I think most growers admit that, then the only question is, How should it be applied? and I submit that the best plan is to mix it intimately with the soil or apply it in the form of top-dressings or in a liquid state. Of course I am speaking of borders that have not to be remade every five

years or so. Mr. Henderson, of Cole Orton, who must be classed amongst the few growers who have produced first-rate Grapes in a constant way for a long period of years without changing the Vines or the borders—a true test of good management—may be listened to by the general cultivator on the subject of borders. Writing to me a year or two ago regarding his Vines, he says:—"The only Vine borders I have made here were made of rather light loam, on the red sandstone formation, with the addition of one-twelfth of good stable-yard manure; no other materials were used, and the Vines planted in this have always borne the best Grapes; the borders were only made 7 ft. wide and 18 in. deep, and the Vines have been bearing for thirty-four years;" during which time I may add that Mr. Henderson has been one of the foremost prize-takers at our great shows. I have seen some of the latest exhibits by Mr. Henderson from these Vines, and though the bunches were not sensational as regards size, still they were fine, and in size of berry and finish I have rarely seen their equal. After all is said, however, about borders, they are a secondary consideration compared with the care of the branches. An escape for gross juices pumped up by the roots must be provided, and this escape—their safety valve—should consist of a good spread of foliage, as much as possible exposed to light and air. I have known poor, debilitated Vines restored to high health and vigour by simply giving them more room and light, without doing anything to the border beyond giving it the annual dressing and watering.

Wortley.

J. S.

Temperature of Vine Borders.—In structures where the front walls are of considerable depth of stone or brick, it is not uncommon to find the outside border much warmer, during the summer months, than the inside portion, which is shielded from the sun by the canopy of foliage; by testing the soil with a thermometer, correct conclusions can be easily arrived at. The outside border, in many respects, has advantages which cannot be provided for that which is shaded, and the latter is, of course, less assisted by Nature. The exposure of the soil to sun and air, the kindly rains of summer, and the border being less likely to suffer from injudicious manuring, by liquids or solids, than when confined inside, are considerations of primary importance. The warmth from the sun and the action of the air on the outside border may be some of the means used by Nature to draw the roots from under cover to the open-air border. Many of the most productive Vines from which Grapes have been cut for many years, and equal, if not superior, to the best which have been exhibited for a long period, are from outside borders, and from some districts, where the rainfall is greatest, having received protection in winter to retain the heat in the soil, the roots are as safe as when entirely under glass. The rain direct from the clouds and full action of sun and air on the soil appear to be the best treatment of the roots. In some large establishments Vine borders are seen outside entirely, but oftener inside, with means provided to let the roots grow out, and this question is likely to affect young beginners in Vine culture most, as experienced men will always be guided by what has answered their purpose best.—M. T.

Desse Tardive Peach.—This to my mind is the best late Peach in cultivation. It is not a new variety; were it so, its sterling merits would soon become better known. Every Peach-cultivator knows the excellent qualities and fine appearance of the Bellegarde and of the Royal George. Well, this Desse Tardive Peach, which is of French origin, is very similar in appearance to the Bellegarde, having the same shape, with a brighter colour, and with the same texture of flesh and the same excellent quality, but it comes into use some weeks later. It might, indeed, very appropriately be called a late Bellegarde. Now, a late Bellegarde is a great improvement—for open-wall culture especially—on the Barrington and Late Admirable, which ripen about the same time. These two latter are suitable enough, and very excellent for house culture, but when grown on the open wall they have an ugly greenish look about them; and it is only a certain proportion of them that are of average quality. They are coarse-grained at the best. There is a wonderful drop-down both in tone and quality, from the mid-season Peaches of the Bellegarde type to the late varieties as at present cultivated. This Desse Tardive will carry on the good appearance and the good quality to the end of the Peach season—till October. At Chiswick last season, according to "A. F. B.," in the "Florist," it fruited on the open wall, two small cordon trees producing eighteen fruits, which were gathered on September 30. They were all large and

highly coloured, and of most excellent quality. Here, therefore, is a speciality worthy of the attention of some of our enterprising nurserymen.

Fruit Crops in Worcestershire.—The fruit crops in this district—from which, on account of the extensive orchard cultivation of Apples and Pears, so much is expected—are very promising indeed. The change to the somewhat cold weather lately experienced seems to have done much to retard the opening of the blossoms which were unusually forward. Peaches, Nectarines, Plums, and Cherries promise an abundance of fruit if late frosts should not do any subsequent mischief. In private gardens, trees young and old are full of fruit-buds. Many trees here, both on walls and as standards, are looking well, and they were mostly planted as late as April and early in May last season. It is very evident that the orchard trees suffered from the superabundant crops they produced in 1875, when the fruit did not in many cases pay for the gathering. On younger dwarf-kept trees, where thinning was practicable, the results were different, as many fine fruits were harvested from them in capital condition. It is pleasing to observe that a change in hardy fruit culture is taking place, and that something which will give better remuneration than the old system of allowing valuable land to be wasted by being occupied with old, worn-out, neglected starvelings, is being substituted. Young trees are planted thickly and get early into bearing, and as they extend, thinning and transplanting are practised with good results.—M. TEMPLE.

Black Ants and Peach-flowers.—I, like "J. G." (see p. 250), have not observed ants to do any material injury to Azalea flowers, but they have always been a source of great annoyance to me here by the depredations which they commit on the blossoms in an early Peach-house. Every season, immediately a few blooms become expanded, they commence a most determined attack upon them, burrowing their way into the inside of the flowers, and never leaving them until the hearts are completely devoured. In order to keep them in check, so as to secure anything like a crop, an immense amount of trouble has been incurred in trapping, poisoning, &c.; but all the remedies which I have tried have only been partially successful until this season, when, quite by chance, I tried some of Scott's Wasp Destroyer, which has been productive of the most satisfactory results, for even after one application I found their numbers greatly reduced, and, after a second, there was not a living ant to be found in the house. I would therefore recommend any of your readers who may happen to be troubled with black ants to give the above mixture a trial.—JAMES WOODFIELD, *Osberton, Worksop.*

Inside and Outside Vine Borders.—As different opinions prevail amongst cultivators with regard to Vine borders, a comparison of notes may be useful. As to Vine roots leaving an inside border to go outside, I am of the same opinion as Mr. Hobday (see p. 210) that the cause is want of proper management; for early Vines, an inside border has an advantage over an outside one; it keeps the roots more uniform in temperature, and as the atmosphere of the house gradually rises, so must it warm the surface of the border, and with 2 in. or 3 in. of rich top-dressing every season, the roots are kept close to the surface, which they prefer to an outside border in the months of January, February, and March. I am not an advocate for the borders being either all inside or all outside; I consider it an advantage without any detriment to have them equally divided, for this reason: if either the inside or the outside border require renewing, each one can be done at separate times without the least injury to the crop; and this is of importance, particularly in the case of growers for market. The best time to renew the borders of early and mid-season Vines is as soon as the fruit is cut, while the Vines are in full foliage; and if the new borders be made up of green turf so much the better, as it forms a mild hotbed, which starts the roots off into growth in a few days, and they get well established, whilst the Vines are in full vigour. During the operation of lifting, it is well to keep the Vinery close and moist for a few days.—JAMES SMITH, *Waterdale.*

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

The Pitmaston Pear.—I find this Pear to be a most vigorous grower and one which does well on the Quince, or indeed on any stock; in fact, either on walls, pyramids, or espaliers, it is in my estimation the finest Pear in cultivation.—JOHN WILMOT, *Isleworth.*

Protecting Fruit Trees.—I notice in a contemporary that mats sown together are recommended for protecting Pear trees, and in another paper that straw neatly tied in string is recommended for the same purpose. The latter is light and airy, but the former is heavy and dark, and there can be no doubt that the straw makes the best protection.—R. GILBERT.

PLATE LXVIII.

HARDY CACTI.

(WITH A COLOURED FIGURE OF ECHINOCACTUS SIMPSONI).

Drawn by H. NOEL HUMPHREYS.

We but infrequently hear or see some record of reputed hardy Cacti, but on investigation it usually turns out that the species in question have undergone no real test of hardiness. The winter may have been mild, or the autumn relatively dry, or the conditions under which the plants existed out-of-doors were not such as to entitle them to the epithet "hardy." As a matter of fact, the number of hardy species of this family at present known is very small, and those cultivators who, without a sufficient trial, report certain plants as hardy, cause many people loss and disappointment. There is such a wealth of hardy plants at our disposition that we can well afford to dispense, in most cases, with half-hardy or delicate subjects. On the other hand, there are certain types, such as the Palm, Cactus, Agave, Tree Fern, and others, so distinct in character and yet for the greater part too exacting as regards climatal conditions for the open air in this country, that it is worth some trouble and expense to ascertain which are the hardiest of these types. Further, there is one important point to bear in mind, and this is, a plant may be perfectly hardy in the south-west and along the western coast of the United Kingdom, and yet not sufficiently hardy to withstand an ordinary winter in the climate of the central and eastern parts, even in the latitude of London. Again, it is a matter for consideration what factor of our climate acts injuriously on the constitution of a given plant—whether the cold be too intense, the humidity too great, or whether the amount of light and heat be insufficient for its proper development. As regards the Cacti, there is no doubt that many species otherwise hardy succumb to the superabundant moisture with which the atmosphere is usually charged. With the exception of the genus *Rhipsalis*, all the members of this curious tribe are natives of America, extending from Chili in the south to Canada (up to 50° N. lat.) in the north, and finding their greatest concentration in Mexico, where many of the smaller species of *Mammillaria* clothe the mountain rocks as Lichens do in other countries. Probably none of the Mexican species, even those growing between an altitude of 10,000 ft. to 15,000 ft. above the level of the sea, would succeed in the open air all the year round in this country. The Chilian species have, so far as I know, not been tried, consequently at present we have only a few of the northern outliers which may be termed hardy representatives of the family, and these should be planted on rockwork in open, airy situations, where they are free from dripping water, and where the drainage is perfect. The following are hardy in all except the coldest and wettest parts of the kingdom:—

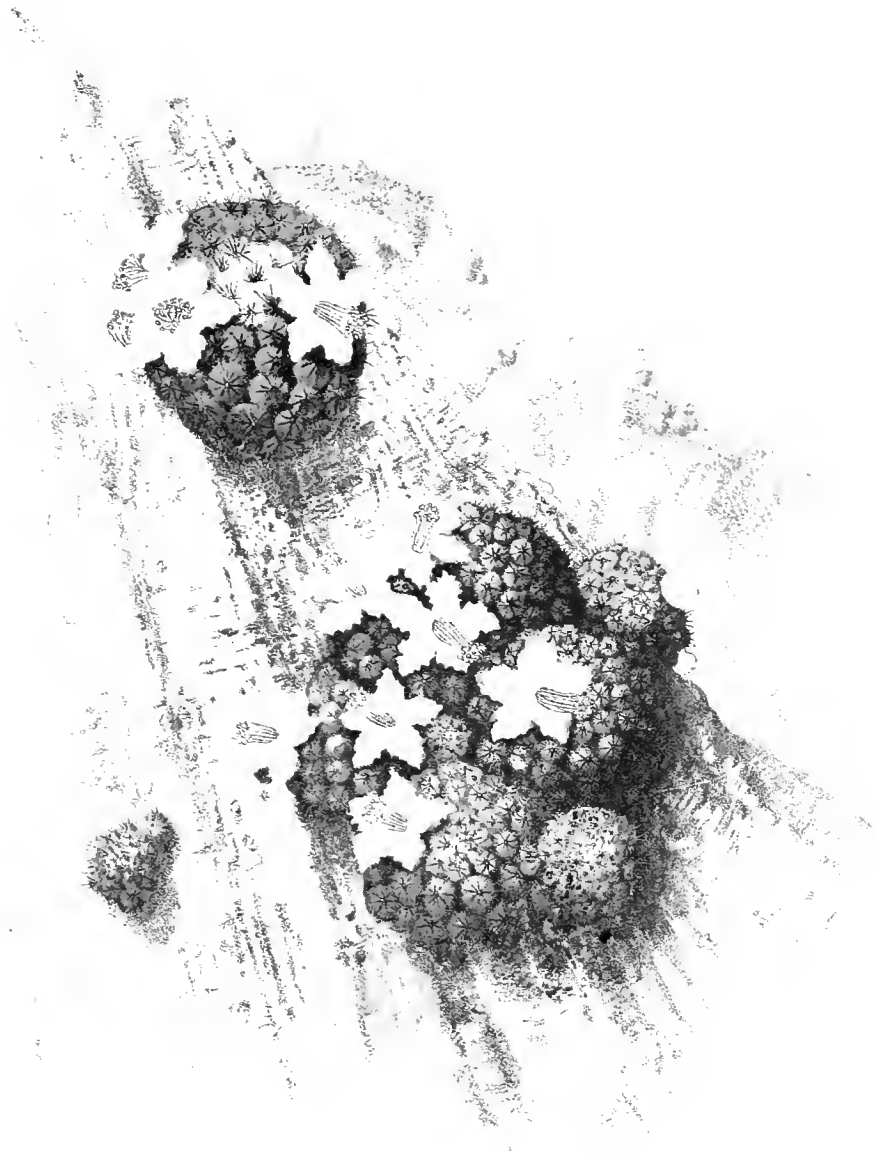
Echinocactus Simpsoni.—This has a greater outward resemblance to the genus *Mammillaria* than the one to which, from the structure of its flowers, it really belongs. According to Dr. Engelmann, the principal authority in all that concerns the North American Cactea, this is the most northern species of the genus, and grows at a greater altitude than any of those out of Mexico. He himself met with it abundantly in Colorado at an elevation of 8500 ft., and in South Colorado it grows at even greater elevations. The variety here alluded to was discovered on the gravelly moraines of the glacial period of Clear Creek Valley, between 8000 ft. and 9000 ft. altitude, and in the southern part of the territory, the Sangre de Cristo Pass at 10,000 ft. high. In its native habitat it enjoys a dry climate, and it is, in some seasons at least, more or less protected from the effects of frost by a covering of snow. But in this country it has withstood 32° of frost without injury, and therefore, if proper precautions be taken with regard to limiting the amount of moisture, both overhead and at the root to the lowest quantity possible, it may be called perfectly hardy. Messrs. Backhouse & Son, of York, introduced living plants of it through their collector a few years ago, and both they and Dr. Engelmann agree in describing the flowers as being more of a pale purple tint, and of a more regularly circular outline than represented in the accompanying figure. It should be mentioned that this is a reduced portrait of the plant, which, in a wild state when fully grown, is 3 in. to 5 in. high, and 3 in. or 4 in. in diameter. But as an exact description will be useful to amateurs, to enable them to satisfy themselves that they have the right species, a transcription of some parts of Dr. Engelmann's description may

be given. In colour this species is of a dark green, and it has loosely-arranged tubercles. These are $\frac{1}{2}$ in. to $\frac{3}{4}$ in. long, somewhat quadrangular at the base, about $\frac{1}{2}$ in. wide at the vertical, and $\frac{1}{2}$ in. in the transverse diameter, sub-cylindrical upwards; areola $\frac{1}{2}$ in. to $\frac{3}{4}$ in. long, and a little more than half as wide. The fruit-bearing tubercles are rather shorter and stouter. Outer spines $\frac{1}{2}$ in. to $\frac{3}{4}$ in. long, whitish, inner spreading stouter, and a little longer, yellowish and deep brown or black in the upper part; there is no truly central spine. In the very young plant the spines number eighteen or twenty, and are only from one-twelfth to one-tenth of an inch long. They all radiate and closely fit together with their compressed, bulbous bases on a linear areola, resembling in shape and arrangement those of *Cereus caespitosus*. Soon the areola widens, and six or eight short, stout, brown, interior spines make their appearance and diverge like the first. The development of the plant is exceedingly interesting. In early spring the young tubercles on the vertex of the plant begin to form, exhibiting their densely woolly tops, and soon afterwards, long before any spines make their appearance, the tips of the smooth, brown flower-buds come out. The flowers are about $\frac{3}{4}$ in. long, and of nearly the same diameter, externally greenish-purple; petals yellowish-green or verging to pale purple. The short stamens arise from the whole surface of the tube, leaving only a very small, nectariferous space in its face. The fruit is about $\frac{1}{2}$ in. long, and almost as wide, borne on a very large, circular areola, surrounded by a woolly margin. It bears towards the top one to three scales, sometimes with one or two small spines in their axils. The variety alluded to above was 1 in. in diameter in the smallest specimens, with every gradation up to the size of the type, and the spines more or less curved. This plant was named after Captain Simpson, the commander of an expedition to Utah, in the botany of which there are two plates devoted to it. This can scarcely be the species alluded to in the "American Gardeners' Monthly" in 1871, which it was stated grew on the Sierra Nevada of California, close to the snow, and attained the dimensions of a large Cabbage. It had been used as a vegetable, after paring, in lieu of Asparagus; and the plant was described as truly beautiful, round as a globe, and covered with snow-white spines. Probably this may all be attributed to the possible fact of the expedition party having tried it in the absence of a more toothsome vegetable; and the descriptive part may be regarded as purely imaginary. Be this as it may, our plant will be welcomed by all amateurs of the curiosities of the vegetable world. In some of the Belgian periodicals it was stated a few years ago that *Echinocactus viridiflorus* and *E. phoeniceus* were hardy at Ghent.

The next, and perhaps only other, genus of Cactaceæ furnishing hardy species is *Opuntia*. It comprises about 150 species, ranging from the southern limit of Cactus life in Chili to the northern limit in North America; one or two of the species have long been naturalized in the countries bordering the Mediterranean sea, and later in India. Indeed, in some of the early books on gardening and botany *O. vulgaris* is stated to be a native of Europe and North America. Little is yet known respecting the species native of the temperate regions of north-west America, but those found in the northern United States are three in number, namely:—*O. vulgaris*, *O. Rafinesquii*, and *O. missouriensis*. These have all large flat-jointed branches, minute scale-like leaves, and large showy yellow flowers.

O. vulgaris.—This species was cultivated in this country by Gerarde nearly three centuries ago, and was then so completely naturalized in the south of Europe that it was regarded as indigenous, and possibly after all it may be so, for many other genera (as *Platanus*, *Liquidambar*, &c.) are represented in these two distant regions by closely allied species. Philip Miller, one of the fathers of gardening in England, says:—"I have planted it under a warm wall, in a very dry soil, where it has continued for five years, and endured the severest of our cold without any cover, and has produced a greater quantity of flowers and fruit than those which were housed; so that the cold is not so great an enemy to this plant as wet, which, if suffered to lie long upon it, or given in too large quantities to the root, will destroy it in a short time." Some writers have confused this and the next, though Engelmann discriminates them as species, and Dr. Asa Gray retains them in his flora of the Northern States. This has pale green, flat, obovate joints, minute ovate or subulate closely appressed leaves, sulphur-yellow flowers, and a nearly smooth, pulpy, eatable berry. It grows on dry rocks and in sandy places, chiefly near the sea-coast, from Nantucket, Massachusetts, southwards.

O. Rafinesquii.—This was introduced into European gardens by Messrs. Haage and Schmidt in 1869. It differs from the preceding in its deep green joints (branches), larger flowers, which often have a red centre, more numerous (ten to twelve) petals, and the longer spreading, not oppressed leaves, from the axils of some of which proceed a few small spines and a single strong one $\frac{3}{4}$ in. to 1 in.



AN ALPINE CACTUS - ECHINOCACTUS SIMPSONI

long. Further, it is a native of the inland States from Wisconsin to Kentucky. At the present moment I have not the means of ascertaining whether the plant cultivated under this name is the true plant, nor am I able either to affirm or deny the statement that this is much harder than *O. vulgaris*. Doubtless in its northern habitats in Wisconsin it braves a more rigorous winter than its congener on the coast, but the latter must surely be hardy under proper treatment.

O. missouriensis.—Inhabiting the same region as *O. Rafinesquii*, from which it differs in its tuberculate branches, in its sinuate leaves, the axils of which are armed with a tuft of straw-colored bristles, and five to ten slender, radiating spines, and in its dry, prickly berry. This does not appear to be in cultivation in this country.

Among other reputed hardy Cacti are *Opuntia bicolor*, distinguished by its long spines and long, white hairs; *Mammillaria simplex*, *M. coronaria*, *Echinopsis Eyresi*, *E. falcata*, &c.: but these cases are not sufficiently authenticated to be acted upon without further trial. But independently of these we have in the plant figured here and the genus *Opuntia* two very distinct, hardy types of the Cactus family. Probably some readers of THE GARDEN may be able to furnish some information respecting the hardness of others. W. B. HEMSLEY.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Cucumbers sown some time back and grown on in good-sized pots must at once be planted out in the frames in which they are to complete their growth. In turning them out of the pots be careful not to break the balls or disturb the roots in any way, or their progress will be checked. See that the soil in which they are planted is not too hot; they will bear a bottom-heat of 85° or 90°, but if higher than this draw the soil away all round from the hills in which they are planted, leaving these for a time no larger than will well cover the roots; the heat will shortly decline, and the soil thus removed can be replaced. Keep a small pot of water standing inside the frame so that it will get warm and fit for use.

Box Edging.—The principal objections to Box edging are that it affords a harbour for slugs and renders it difficult to apply salt to the walks for the destruction of weeds, or to apply it as a manurial dressing to the ground which the Box encloses; but apart from this there is no edging that equals Box in appearance when well kept. With amateurs it is frequently allowed to become too large through inattention to cutting, or by permitting it to remain too long without replanting. The present is a good time for either replanting or making up any deficiencies that may exist through the Box having died in places; the latter mishap generally occurs where the land is of a heavy, wet, retentive nature, and insufficiently drained, or it is killed through vegetable crops being planted too near it. If the haulms of Potatoes overhang it during the summer, or if Cabbages, Beet, or anything of similar character be too close, it gets killed. Where any considerable portion of the Box is dead it is much better to take up the whole and replant, as where the dead portions are simply replaced it has a patchy look. A Box edging that is well planted in a workmanlike manner, and one in which the operation is indifferently performed, produce as great a difference in effect as that resulting from good and inferior work in any gardening operation. As many amateurs may not have had any experience in Box planting, a few hints may be of use. In the case of existing edgings in the usual position, viz., bounding gravel walks that require to be thus treated, the first thing is to remove all the gravel from the sides, placing it in a ridge in the middle of the walk; take up the whole of the Box which should be heeled in to prevent the roots drying until the ground is prepared; commence at one end and dig where the Box has stood and is to be replanted about 1½ ft. or 2 ft. in width, breaking the soil fine as the work proceeds, leaving the top quite level or with a gradual rise according to the more or less sloping position of the ground. Care must be taken to have the surface thus dug of the right height proportionate to the ground which the edging is to enclose; if too high, it will have an awkward appearance, and if too low, it gets smothered through the rains washing the soil down upon it: this condition as to the requisite height is after it has been made solid by treading and beating with the back of the spade. Draw the line from end to end, quite straight or gradually curved as the course of the walks requires, with a spade open a trench cutting straight down so as to have it perpendicular on the off side, drawing the soil inwards; this trench should be the full depth of the spade, then commence with the Box, dividing it by hand, it will split up

readily, and care must be used to secure a portion of roots to all that has to be planted; begin planting it in a thin continuous line with the tops about 2½ in. or 3 in. above the surface, filling in the trench as the work proceeds with the soil that was taken out to form it, treading it with the feet solid so as to make it lie quite close. After the planting on both sides of the walk is done, replace the gravel, adding more if required; a little practice will enable the operator to plant the Box in a continuous, even line, all equal in height and breadth. All the subsequent attention necessary for some time will be in the matter of watering the Box in May or June if the weather be very dry.

Ivy on walls, covering arbours, or any similar structures should now be cut. This most useful of all plants for wall covering is very often neglected, and allowed to grow from year to year until the accumulated weight of the shoots not actually attached to the wall is such that, with the force of the wind, the whole gets torn away, in which case there is very great difficulty afterwards in getting it to attach itself properly to the wall, which often necessitates the complete cutting away of the loosened portion, and until the denuded part of the wall gets clothed with fresh growth it has an unsightly appearance. Another advantage in yearly cutting Ivy is that the leaves, which annually decay and fall off, are all cleared away at once, and although the Ivy thus stripped of its leaves for a few weeks looks bare, still, when the work is done at this season just as growth is about to commence, it shortly becomes clothed with new foliage of the most beautiful green. The present is a good time for planting Ivy; it is sometimes thought that this most accommodating plant (which will grow in some way almost anywhere except in situations where the soil is excessively wet) does not need the ground to be prepared for its reception, yet there is no plant that better repays liberal treatment, with good soil and plenty of manure. If the soil be deficient add as much as will bring it up to 1 ft. in depth at least, to which dig in 1 in. of good rotten manure; with suitable preparation Ivy will make more growth in a single season than it would in three seasons in poor, shallow soil. Where the space to be covered is limited in extent, I should recommend the use of plants that have been grown in pots, as those taken up from the open ground do not make nearly the progress the first season that those that have been kept in pots do; in which condition they are to be had in most nurseries often 6 ft. or 8 ft. in height, with several shoots each. Plants of this description at once cover a considerable surface; when turned out of the pots disentangle the roots without breaking them more than is unavoidable, spread them out and cover with 3 in. or 4 in. of soil, treading it firm, at once nailing the shoots into the position required. If the situation be inclined to be dry, as it often is near walls, mulch the surface during the summer with 3 in. of rotten manure.

Evergreen Hedges.—Holly, Yew, or other evergreen hedges should now receive what cutting or trimming they require. It is not well to cut hedges of this description in the winter, like those that are deciduous, for, should severe frost follow, the shoots are sometimes killed back considerably from the point where cut, whereas if the operation be performed now, danger from this cause is avoided. To equalize the strength and keep the bottom thick and close, leave them much wider at the base, sloping gradually upwards, having the top quite narrow to a point, as in the case of deciduous hedges. The old fashion of square-topped hedges of this description should never be followed. Where Yew hedges exist, they ought to be allowed to grow much wider and higher than Holly, as the plant, being naturally of large growth, will not continue in health if not permitted to attain a considerable size. Where a hedge has been planted merely for a screen or to afford shelter, it is not advisable to resort to formal clipping, as the desired end can be attained with much better appearance by simply shortening with the knife any branches that are outgrowing the rest.

Roses.—The remaining portion of these should now be pruned, as, if this operation be longer deferred, it will cause the bloom to be late; the dormant buds that have yet to start into growth will after this time not get so forward as to endanger their suffering by frost.

Shrubberies.—The practice of clipping evergreen shrubs, (such as Portugal or common Laurels), which was once so general, is anything but desirable, except in the case of plants that are encroaching upon walks, roads, or each other, and which cannot well be moved altogether from their position; but, in cutting these, do not use the shears or knife so as to leave an even surface; with a little judgment an irregular outline may be preserved, at the same time keeping them within the necessary bounds. Look over all specimens in the shrubbery to see that they do not nudely encroach on each other, taking up such as are of the least importance; for, although I prefer the end of summer for transplanting Evergreens, still it is better to move now—though it may necessitate a deal of labour in

watering through the spring and summer—than to allow valuable plants to injure each other.

Kitchen Garden.—Potato planting should be completed as soon as possible after this time in all places where the soil is sufficiently dry; but, although it is well to get this work finished by the middle of the month, where the land is wet and sticky, it is better to defer it even a fortnight later than to tread the ground whilst it is in this state. On seasons such as the present, when the land is wet, it is better to plant in holes made by the old-fashioned stick with a foot-rest than in drills made with the spade, as by the former means the ground is not nearly so much trampled on, and if boards be used to step upon, these can be made to do duty in place of a line; the holes can be filled in with the rake as the work goes on.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

April 9.—Potting Achimenes in 6-in. pots, putting sixteen plants in each pot. Potting spring-struck Centaureas, Nasturtiums, Veronica Andersoni variegata, Cedronella cana, Lobelia Paxtoni, various Petunias, and Viola cornuta. Shifting Caladiums, Tuberoses, Azaleas, Cytisus, and Camellias into larger pots; also Pot Vines. Sowing Asparagus. Planting two rows of Globe Artichokes, and second pit of Melons. Pricking off Marigolds, Prince's Feather, Love-lies-bleeding, Incomparable and Nine-o'clock Celery, and one light of second-sown Cauliflower plants. Tying up late Vines. Thinning fruit in Peach-houses where too thickly set. Sowing Asparagus beds. Clearing manure from Rhubarb crowns out-of-doors. Turling blank places in lawn. Digging land for Spinach, and cleaning Herb beds. Putting rimmed saucers under Strawberry plants, swelling their fruit, and staking Sweet Peas in open ground. Hoeing between vegetable crops, and taking litter off Vinery borders. Putting Seakale seed in water to soak, in order to hasten germination.

April 10.—Potting Tree Mignonette, using half loam, half cow manure, and some silver sand, and giving but a small shift at a time. Sowing Cattell's Crimson Beet; also Altringham and Long Orange Carrots, Champion of England and Victoria Marrow Peas, Long-pod Beans, Early Stone and White Dutch Turnips, Red and White Celery, Seakale, Sorrel, and Green-fleshed Melons, and a row of Sweet Peas. Planting Strawberries and Larkspurs. Pricking out Tagetes signata and Lettuce plants. Spawning Mushroom bed. Getting all established bedding plants out-of-doors. Thinning earliest-sown Turnips. Earthing up Cauliflowers. Clearing away Winter Greens that are running to seed. Cutting off all bunches of Grapes except one to a shoot from Muscat and Hamburgh Vines.

April 11.—Potting Fiferfew, Pentstemons, Hydrangeas, Balsams, and seedling Cyclamens. Shaking out and repotting scented Pelargoniums. Shifting Cissus discolor and putting it in heat; standard Chrysanthemums into 8-in. pots; and Fuchsias into 6-in. pots. Sowing French Beans under the protection of a wall; sowing also Cabbage, Winter Greens, Lettuce, and Veitch's Antenn Giant, Early London, and Walcheren Cauliflower, Cooling's Matchless and Melville's Broccoli, Sweet Basil, Marjoram, Australian and American Cress. Planting Beet for seed, and a good breadth of Asparagus. Pricking off Asters, Picotees, Carnations, Wigandias, Salvia argentea, and Zinnias. Sticking Peas. Tying up more Lettuce. Putting Broccoli fit for use into cellars in order to prolong its season as much as possible. Salting Cabbage ground. Sulphuring hot-water pipes in Fig and Strawberry-house to keep off red spider. Putting annuals from Vineries in sheltered spots out-of-doors. Covering Asparagus heads with soil where shoots are peeping. Watering Vine border. Earthing up Cucumbers. Hoeing among Strawberry plants. Manuring Rose trees and washing leaves in Hamburgh-honse to kill thrips.

April 12.—Potting Daturas in flowering pots and Sweet Peas in 12-in. ones. Sowing Radishes, Malope grandiflora, Spinach, Vegetable Marrows, and Ice plants; also Cucumbers, Melons, and Gherkins; likewise Scotch and Buda Kales. Transplanting earliest Celery into manure. Pricking out Arabis. Disbudding Peach trees in houses. Putting into cold frames recently pricked-off Lettuce and Cauliflower plants. Thinning Grapes and washing Cattleys.

April 13.—Potting blue Salvias, spring-struck Verbenas, Iresines, and young Tree Carnations. Shifting pot Vines into fruiting pots and potting off Cockscobs. Sowing French Beans and Grass seeds. Planting out all frame Violets. Pricking off Perilla and Stocks.

Putting in cuttings of Mrs. Pollock, Goldfinch, and Cloth of Gold Pelargoniums, and placing them in heat; also Plumbago, Bouvardias, and scented Verbenas. Watering under pipes in Peach-houses; earthing up last frame of Potatoes. Throwing out trenches for main crop of Celery. Digging Willow beds near pond. Raising temperature of Vines in bloom to 65° by night.

April 14.—Potting Wigandias and other fine-leaved plants for conservatory; potting off Balsams and seedling Lobelias. Sowing ornamental Grasses and Gourds, Incomparable and London Colewort, Fearnought Cabbage, Couve Tronchuda, and Seakale. Planting Lettuce and pricking off annuals in frames. Washing Gardenias to free them from scale. Covering Potatoes peeping aboveground with fine soil. Watering Cauliflower plants under hand-lights with sewage. Getting all established bedding plants out-of-doors; also Balm. Plants in flower in houses;—Lily of the Valley, Cinerarias, Azaleas, Aphelexis, Dentzias, Heaths, Oranges, Camellias, Cytisus, Rhododendrons, Tropaeolums, Mignonette, Violets, Fuchsias, Heliotropes, Ixias, Clematis Jackmanni, Crinum amabile, Passiflora princeps, Roses, Salvia splendens, Lilacs, Begonias, Mimulus, Genetyllis tulipifera, Hemerocallis, and Gesneras.

THE PLANT-LORE OF SHAKESPEARE.

(Continued from p. 250.)

Broom.

- (1) *Iris*. And thy Broomed groves.
Whose shadow the dismissed bachelor loves.
Tempest, act iv., sc. 1.
- (2) *Puck*. I'm sent with Broom before
To sweep the dust behind the door.
Midsummer Night's Dream, act v., sc. 2.
- (3) *Moa*. I made good my place; at length they came to the Broomstaff
with me.
Henry VIII., act v., sc. 3.

THE BROOM was one of the most popular plants of the Middle Ages. Its modern Latin name is *Cytisus scoparius*, but under its then Latin name of *Planta geuista* it gave its name to the Plantagenet family, either in the time of Henry II. as generally reported, or probably still earlier. As the favourite badge of the family, it appears on their monuments and portraits, and was embroidered on their clothes, and imitated in their jewels. Nor was it only in England that the plant was held in such high favour; it was the special flower of the Scotch, and it was highly esteemed in many countries on the Continent, especially in Brittany. Yet, in spite of all this, there are only these three notices of the plant in Shakespeare, and of those three, two (2 and 3) refer to its uses when dead; and the third (1), though it speaks of it as living, yet has nothing to say of the remarkable beauties of this favourite British flower. Yet it has great beauties which cannot easily be overlooked. Its large, yellow flowers, its graceful habit of growth, and its fragrance at once arrest the attention of the most careless observer of Nature. We are almost driven to the conclusion that Shakespeare could not have had much real acquaintance with the Broom, or he would not have sent his "dismissed bachelor" to "Broomed groves." I should very much doubt that the Broom could ever attain to the dimensions of a grove, though Steevens has a note on the passage that "near Gamlingay, in Cambridgeshire, it grows high enough to conceal the tallest cattle as they pass through it; and in places where it is cultivated still higher." Chaucer speaks of the Broom in somewhat the same way, but does not make it so much of a tree:—

"Amid the Broom he basked in the sun."

As a garden plant it is perhaps seen to best advantage when mixed with other shrubs, as when grown quite by itself it often has an untidy look. There is a pure white variety which is very beautiful, but it is very liable to flower so abundantly as to flower itself to death. There are a few other sorts, but none more beautiful than the British.

Burs.

- (1) *Celia*. They are but Burs, cousin, thrown upon thee in holiday
foolery. If we walk not in the trodden paths our very petticoats
will catch them.
Rosalind. I could shake off my coat—these Burs are in my heart.
As You Like It, act i., sc. 3.

- (2) *Lucio.* Nay, friar, I am a kind of Bur, I shall stick.
Measure for Measure, act iv., sc. 3.
- (3) *Lysander.* Hang off, thou cat, thou Bur.
Midsummer Night's Dream, act iii., sc. 2.
- (4) *Pandarus.* They are Burs, I can tell you—they will stick where they are thrown.
Troilus and Cressida, act iii., sc. 2.
- (5) *Burgundy.* And nothing teems
 But hateful Docks, rough Thistles, Kceksies, Burs.
Henry V., act v., sc. 2.

The Bur is the unopened flower of the Burdock (*Arctium Lappa*). Its clinging quality arises from the bracts of the involucre being long and stiff, and with hooked tips which attach themselves to every passing object. The Burdock is a very handsome plant when seen in its native habitat by the side of a brook, its broad leaves being most picturesque, but it is not a plant to introduce into a garden. There is another tribe of plants, however, which are sufficiently ornamental to merit a place in the garden, and whose Burs are even more clinging than those of the Burdock. These are the Acanas; they are mostly natives of America and New Zealand, and some of them (especially *A. sarmentosa* and *A. microphylla*) form excellent carpet plants, but their points being furnished with double hooks, like a double-barbed arrow, they have double powers of clinging.

Burnet.

Burgundy. The even mead that erst brought sweetly forth
 The freckled Cowslip, Burnet, and Sweet Clover.
Henry V., act v., sc. 2.

The Burnet (*Poterium Sanguisorba*) is a native plant of no great beauty or horticultural interest, but it was valued as a good salad plant, the leaves tasting of Cucumber, and Lord Bacon (contemporary with Shakespeare) seems to have been especially fond of it. He says ("Essay of Gardens") :—"Those which perfume the air most delightfully, not passed by as the rest, but being trodden upon and crushed, are three, that is, Burnet, Wild Thyme, and Water Mints, therefore you are to set whole alleys of them, to have the pleasure when you walk or tread." It also was, and still is valued as a forage plant that will grow and keep fresh all the winter in dry, barren pastures, thus often giving food for sheep when other food was scarce. It has occasionally been cultivated, but the result has not been very satisfactory, except on very poor land, though, according to the Woburn experiments, as reported by Sinclair, it contains a larger amount of nutritive matter in the spring than most of the Grasses. It has brown flowers, from which it is supposed to derive its name (Brunetto).

Cabbage.

Evans. *Pauca verba*, Sir John, good worts.
Falstaff. Good worts! good Cabbage.
Merry Wives, act i., se. 1.

The Cabbage of Shakespeare's time was essentially the same as ours, and from the cotemporary accounts it seems that the sorts cultivated were as good and as numerous as they are now. The cultivated Cabbage is the same specifically as the wild Cabbage of our sea-shores (*Brassica oleracea*) improved by cultivation. Within the last few years the Cabbage has been brought from the kitchen Garden into the flower garden, on account of the beautiful variegation of its leaves. This, however, is no novelty, for Parkinson said of the many sorts of Cabbage in his day: "There is greater diversity in the form and colour of the leaves of this plant than there is in any other that I know groweth on the ground. . . . Many of them being of no use with us for the table, but for delight to behold the wonderful variety of the works of God herein."

Camomile.

Falstaff. Though the Camomile the more it is trodden on the faster it grows, yet youth the more it is wasted the sooner it wears.
1st Henry IV., act ii., sc. 4.

The low-growing Camomile, the emblem of the sweetness of humility, has the lofty names of Camomile (*Chamamelum*, i.e., Apple of the Earth) and *Anthemis nobilis*. Its fine, aromatic scent and bitter flavour suggested that it must be possessed

of much medicinal virtue, while its low growth made it suitable for planting on the edges of flower-beds and in paths, its scent being brought out as it was walked upon. As a garden flower it is now little used, though its bright starry flower and fine scent might recommend it; but it is still to be found in herb gardens, and is still, though not so much as formerly, used as a medicine.

Carduus (see Holy Thistle).

Carnations.

Perdita. The fairest flowers of the season
 Are our Carnations and streaked Gillyflowers,
 Which some call Nature's bastards.
Winter's Tale, act iv., sc. 3.

There are other places in which Carnation is mentioned, but they refer to carnation colour—i.e., to pure flesh colour. Dr. Johnson and others have supposed that the flower is so named from the colour, but that this is a mistake is made very clear by Dr. Prior. He quotes Spenser's "Shepherd's Calendar"—

Bring Coronations and Sops-in-Wine
 Worn of Paramours.

and so it is spelled in Lyte's "Herbal," 1578, coronations or coruations. This takes us at once to the origin of the name. The plant was one of those used in garlands (*corone*), and was probably one of the most favourite plants used for that purpose, for which it was well suited by its shape and beauty. Pliny gives a long list of garland flowers (*Coronamentorum genera*) used by the Romans and Athenians, and Nicander gives similar lists of Greek garland plants, in which the Carnation holds so high a place that it was called by the name it still has—*Dianthus*, or Flower of Jove. Its second specific name, *Caryophyllus*—i.e. Nut-leaved—seems at first very inappropriate for a Grassy-leaved plant, but the name was first given to the Indian Clove tree, and from it transferred to the Carnation, on account of its fine Clove-like scent. Its popularity as an English plant is shown by its many names—Pink, Carnation, Gilliflower (an easily-traced and well-ascertained corruption from *Caryophyllus*), Sops-in-Wine (from the flowers being used to flavour wine and beer), Clove, Picotee, &c. There is an historical interest also in the flowers. All our Carnations, Picotees, and Cloves come originally from the single *Dianthus caryophyllus*; this is not a true British plant, but it holds a place in the English flora, being naturalized in Rochester and other castles. It is abundant in Normandy, and I found it (in 1874) covering the old castle of Falaise in which William the Conqueror was born. Since that I have found that it grows on the old castles of Dover, Ludlow, Deal, and Cardiff, all of them of Norman construction, as Rochester, which was built by Guthlac, the special friend of William. Its occurrence on these several Norman castles make it very possible that it was introduced by the Norman builders, perhaps as a pleasant memory of their Norman homes, though it may have been accidentally introduced with the Normandy (Caen) stone, of which parts of the castles are built. How soon it became a florist's flower we do not know, but it must have been early, as in Shakespeare's time the sorts of Cloves, Carnations, and Pinks were so many that Gerarde says :—"a great and large volume would not suffice to write of every one at large in particular, considering how infinite they are, and how every yeare, every clymate and countrey, bringeth forth new sorts, and such as have not heretofore bin written of;" and so we may certainly say now—the description of the many kinds of Carnations and Picotees, with directions for their culture, would fill a volume.

Carraways (see Apple).

Carrot.

Evans. Remember, William, focative is *carot*.
Quickly. And that's a good root.
Merry Wives, act iv., sc. 1.

Dame Quickly's pun gives us our Carrot, a plant which, originally derived from our wild Carrot (*Daucus Carota*), was introduced as a useful vegetable by the Flemings in the time of Elizabeth, and has probably been very little altered or improved since the time of its introduction. In Shakespeare's time the name was applied to the "Yellow Carrot" or Parsnep, as well

as to the Red one. The name of Carrot comes directly from its Latin or rather Greek name, *Daucus Carota*, but it once had a prettier name. The Anglo-Saxons called it "bird's-nest," and Gerarde gives us the reason, and it is a reason that shows they were more observant of the habits of plants than we generally give them credit for:—"The whole tuft (of flowers) is drawn together when the seed is ripe, resembling a bird's-nest; whereupon it hath been named of some bird's-nest."

Cedar.

- (1) *Prospero*. And by the spurs plucked up
The Pine and Cedar. *Tempest*, act v., sc. 1.
- (2) *Dumain*. As upright as the Cedar.
Love's Labour Lost, act iv., sc. 3.
- (3) *Warwick*. As on a mountain top the Cedar shows,
That keeps his leaves in spite of any storm.
1st Henry VI., act v., sc. 1.
- (4) *Warwick*. Thus yields the Cedar to the axe's edge,
Whose arms gave shelter to the princely eagle,
Under whose shade the ramping lion slept,
Whose top branch o'erspread Jove's spreading tree,
And kept low shrubs from winter's powerful wind.
3rd Henry VI., act v., sc. 2.
- (5) *Cromwell*. He shall flourish,
And like a mountain Cedar reach his branches
To all the plains about him.
Henry VIII., act v., sc. 4.
- (6) *Posthumus*. When from a stately Cedar shall be lopped branches,
which being dead many years shall after revive.
Cymbeline, act v., sc. 4; and act v., sc. 5.
- (7) *Soothsayer*. The lofty Cedar, royal Cymbeline,
Personates thee.
Thy lopped branches are now revived,
To the majestic Cedar joined.
Cymbeline, act v., sc. 5.
- (8) *Gloster*. But I was born so high
Our airy buildeth in the Cedar's top,
And dallies with the wind and scorcs the sun.
Richard III., act i., sc. 3.
- (9) *Coriolanus*. Let the mutinous winds
Strike the proud Cedars 'gainst the fiery sun.
Coriolanus, act v., sc. 3.
- (10) *Titus*. Marcus, we are but shrubs, no Cedars we.
Titus Andronicus, act v., sc. 3.
- (11) The sun ariseth in his majesty,
Who doth the world so gloriously behold,
That Cedar tops and hills seem burnished gold.
Venus and Adonis.
- (12) The Cedar stoops not at the base shrub's foot,
But low shrubs wither at the Cedar's root.
Rape of Lucrece.

The Cedar is the classical type of majesty, and grandeur, and superiority to everything that is petty and mean. So Shakespeare uses it, and only in this way; for it is very certain he never saw a living specimen of the Cedar of Lebanon. But many travellers in the East had seen it and minutely described it, and from their descriptions he derived his knowledge of the tree; but not only, and probably not chiefly from travellers, for he was well acquainted with his Bible, and there he would meet with many a passage that dwelt on the glories of the Cedar, and told how it was the king of trees, so that "the Fir trees were not like his boughs, and the Chestnut trees were not like his branches, nor any tree in the garden of God was like unto him in his beauty, fair by the multitude of his branches, so that all the trees of Eden that were in the garden of God envied him" (Ezekiel xxxi, 8-9). It was such descriptions as these that supplied Shakespeare with his imagery, and which made our ancestors try to introduce the tree into England. But there seems to have been much difficulty in establishing it. Evelyn tried to introduce it, but did not succeed at first, and the tree is not mentioned in his "Sylva" of 1664. It was, however, certainly introduced in 1676, when it appears, from the gardeners' accounts, to have been planted at Bretby Park, Derbyshire ("Gardeners' Chronicle," January, 1877). I believe this is the oldest certain record of the planting of the Cedar in England, the next oldest being the trees in Chelsea Botanic Garden, which were certainly planted in 1683. Since that time the tree has proved so suitable to the English soil

that it is grown everywhere, and everywhere asserts itself as the king of evergreen trees, whether grown as a single tree on a lawn, or mixed in large numbers with other trees, as at Highclere Park, in Hampshire (Lord Carnarvon's). Among English Cedar trees there are probably none that surpass the fine specimens at Warwick Castle, which owe, however, much of their beauty to their position on the narrow strip of land between the Castle and the river. I mention these to call attention to the pleasant coincidence (for it is nothing more) that the most striking descriptions of the Cedar are given by Shakespeare to the then owner of the princely Castle of Warwick (Nos. 3 and 4). The mediæval belief about the Cedar was that its wood was imperishable. "Hæc Cedrus, A^c sydyrette, et est talis nature quod nunquam putrescet in æqua nec in terra" (English Vocabulary—15th century); but as a timber tree the English-grown Cedar has not answered to its old reputation, so that Dr. Lindley called it "the worthless though magnificent Cedar of Lebanon."

H. N. ELLACOMBE.

(To be continued.)

NEW PLANTS.

Calliphurria subdentata.—A graceful New Granadian plant, nearly allied to *Eucharis*, of which it has the habit of growth. Mr. Baker says:—"This is a plant which has been in English gardens for many years, and in the absence of flowers has passed for *Eucharis candida*." Lately it has flowered in several places almost simultaneously, and it turns out not to be a *Eucharis* but a near neighbour of the *Calliphurria Hartwegiana*, which was figured in the "Botanical Magazine," t. 6259. It however differs from *C. Hartwegiana* in the filaments, in which the toothing is sometimes entirely wanting, so that for the botanical systematist it forms an awkward connecting link between the tribes *Amaryllideæ* and *Panicaceæ*. The *Eucharis candida* which was distributed by Mr. Bull (see THE GARDEN, 1876, plate xvi.) in 1876, is the true plant as named by Planchon. In habit the present plant could scarcely be distinguished from *Eucharis amazonica*, its bright green, ovate leaves, being borne on stout petioles 1 ft. or more in length; the flowers, which are borne in clusters of from five to seven on the apex of a slender scape, are of snowy whiteness. For the opportunity of making the annexed sketch we are indebted to Mr. T. Whellans, gardener to S. Lawrence, Esq., Clapham Park, with whom, as well as with Mr. G. R. Sheath, gardener to M. H. Beaufoy, Esq., of South Lambeth, this plant has flowered. The figure cited below gives but a slight idea of the graceful beauty of this plant.—"Botanical Magazine," t. 6289.

Restrepia antennifera.—A singular little Orchid from the New Granadian Andes, discovered in the first instance by Humboldt growing on the trunks of trees near Pasto at an elevation of 9000 ft., and since collected by other travellers in different localities in Now Granada and also in Venezuela at altitudes varying from 6000 ft. to 10,500 ft. The tufted, slender stems each bear a broadly-ovate, fleshy leaf, from 2 in. to 3 in. in length, and nearly 2 in. broad. The flowers, which are borne singly on slender scapes, are from 4 in. to 6 in. in length. The sepals and petals are lance-shaped, attenuated into slender tails, the conspicuous lip being boat-shaped and of a yellow colour dotted with red-purple behind. A plant well worth culture.—"Botanical Magazine," t. 6288.

Rondeletia Baekhousei.—A pretty pink-flowered shrub from Tropical America, whence it appears to have reached Messrs. Backhouse & Sons, of York, from the Continent, and was sent by them to Kew in 1860. Like *Cinchona* and other tropical *Rubiaceæ*, their flowers appear to be dimorphic, and in this case the stamens are conspicuous, the style being hidden deep down in the tube. It is described as a small shrub, and bears terminal clusters of delicate rosy-pink flowers fully $\frac{1}{2}$ in. in diameter. A plant well worth culture.—"Botanical Magazine," t. 6290.

Gladiolus ochroleucus.—A pretty little yellow-flowered species, a native of the Transvaal Territory and Kaffraria. It is said to grow in Grassy places at an elevation of 2000 ft. It has been imported by Mr. Bull, and although not showy, well deserves culture in a collection.—"Botanical Magazine," t. 6291.

Orychophragmus sonchifolius.—This is a singularly interesting and beautiful blue-flowering plant, herbaceous or annual, and said to be hardy. It belongs to *Crucifera*, but seems distinct from any other plant in cultivation. I have only seen imperfect flowers in a cool house, but even these were beautiful.—H. T.

TREES AND SHRUBS.

NEW WAY OF DETERMINING SPECIES OF ABIES.

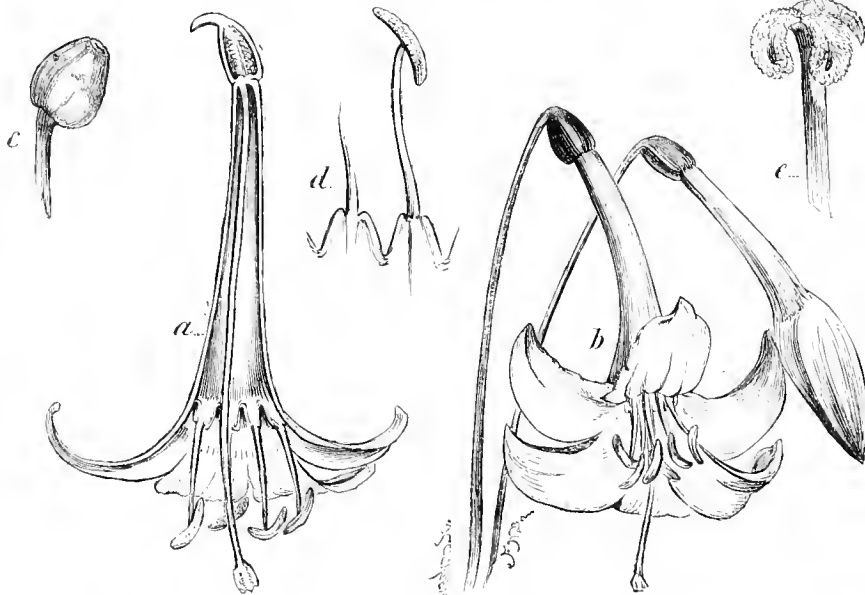
IN 1874 Dr. C. E. Bertrand, of Paris, published a work on the comparative anatomy of the stems and leaves of the Gnetales and Coniferae.* In that work, after giving an historical sketch of the literature of the subject, he describes the minute anatomy of the leaves of most of the important genera, and in many cases gives synoptic tables by which the species of certain of the genera may be determined. In the present essay I propose to state very briefly the results of an independent investigation, made during the past eighteen months, on the anatomy of the leaves of the various species of *Abies* of Link (*Picea*, Don), and *Pseudotsuga*, Carrière (*Abies* of authors). In so doing, I hope to be able to correct many errors that Bertrand seems to have committed, owing probably to the imperfection of the materials at his command; and, further, to throw some light on the obscure synonymy of this extremely interesting group of plants. In examining the structure of the leaves of the species of *Abies*, it is chiefly necessary to obtain good transverse sections from the middle of the leaf. These must be thin and accurately cut, and are best rendered suitable for careful examination by being placed in a solution composed of equal parts of glycerine and water. The slices require to be examined with a moderate magnifying power, say of from 80 to 100 diameters. The chief points to notice in the transverse section are the following:—First, carefully examine the central midrib or vein of the leaf. It consists, in *Abies*, of a pair of fibro-vascular bundles, placed in general very close together, and exhibiting distinctly two wood portions, one belonging to each of the separate bundles. *Abies* can be at once separated from *Pseudotsuga* and *Tsuga* by this character, as in both of these the bundle is single, only one wood portion being visible. Second, observe the sheath of delicate parenchymatous cells surrounding the single or double bundle. It is a single layer of cells, very different from the tissue of the mesophyll or ground tissue of the leaf on the

cellular tissue is loose, with many intercellular spaces communicating with the stomata of the under surface. On the upper side the chlorophyll-bearing cells are generally placed so as to form two zones or more of the palisade tissue; if, however, stomata be present on the upper side, then the palisade tissue is interrupted, and the loose tissue, with the usual intercellular spaces, will be noticed. Fourthly, in the mesophyll, two resin canals will be found, their position varying in different species. The resin canal is an intercellular canal, surrounded by a zone of small, rather thick-walled cells. The canals are, in one series, placed in the middle of the parenchyma, and run from base to apex of the leaf parallel to the midrib, but about equidistant from the midrib and margin, and also nearly equidistant from the upper and under sides of the leaf. In another series the resin canals are placed very close to the epidermis of the under side of the leaf, running parallel and close to the margin of the leaf. The resin canals are very conspicuous objects in the transverse section, and are of great importance in separating the different forms. Fifthly, the epidermis of the upper and lower surfaces of the leaf, and the cells immediately beneath it, have to be carefully examined. The epidermis consists of a single layer of cells with thick walls, and externally provided with a well-developed cuticle. It

also bears the stomata in rows, the rows forming very definite white bands on the under surface, one on each side of the midrib. When stomata are present on the epidermis of the upper side, they generally occur in long rows, sometimes over the whole surface, or limited to the upper half or third of the leaf; or, lastly, may form a narrow band down the whole centre of the leaf above the midrib. Beneath the epidermis a series of thickened cells is generally developed. These belong to the ground tissue of the leaf, and have nothing to do morphologically with the epidermis. These thickened cells form a continuous, or interrupted, or scattered series called the hypodermis, and in a few rare cases they are wanting altogether. The study of the minute anatomy of the leaf, as shown by making a simple transverse section of the fully-developed leaf, cannot fail to be useful to all arboriculturists. After the



Calliphurria subdentata (reduced figure of the plant). (See p. 278).



Calliphurria subdentata.—a, section of flower; b, flower and full-sized bud, natural size; c, ovary, enlarged; d, stamens, enlarged; e, stigma, enlarged. (See p. 278).

one side, and from the cells of the fibro-vascular bundles on the other. Thirdly, the general parenchyma of the leaf is to be scrutinised. If stomata be developed on one side of the leaf only, that is, on the under side, then the Chlorophyll-bearing

examination of several hundreds of specimens, native and cultivated, I can testify to the permanence of the characters, and to their value in separating many closely related forms. It must be kept in mind, however, that attention must be paid to the proper selection of the leaves for examination. They must be full grown, and from plants of some

* "Anatomie comparée des tiges et des feuilles chez les Gnétacées et les Conifères," par C. E. Bertrand, Paris: G. Masson, 1874.

size, as the leaves of very young specimens (say two or three years old) often differ from those of mature ones. The differences in the structure of young and old leaves generally have a certain relation. Thus a species, which has no hypoderma in the mature leaf, will not have any in the young leaf; and a leaf, with a continuous zone of hypoderma, when mature, will have a more or less interrupted one in the young leaves. In a few cases the position of the resin canals seems a little variable in the young and old leaves. This has been observed in a few cultivated forms, as *Abies bifolia* (A. Murray), *Abies firma* of gardens, and in *Abies Pichta* of gardens. In some of the species, two kinds of leaves are produced, those in the ordinary vegetative shoots being different from those on the cone-bearing axes. This is very well marked in *Abies bifolia* (Murray), hence the specific name; also in *Pseudotsuga magnifica* and *nobilis*, and probably also in *A. Pinsapo*, but I have not been able to examine the cone-bearing shoot of an authentic specimen. In this essay I propose to take Parlatore's species, as described in De Caudolle's Prodrômus, and make some remarks on the synonymy. It will be necessary to depart from his arrangement somewhat, as it is of importance to separate the anatomically distinct species belonging to *Pseudotsuga* (of which *A. nobilis* is the type) from *Abies*. It is also impossible to give full details of the microscopic structure of the leaves of each species, as that would require more space than I have at my disposal, and would need numerous drawings to render the description intelligible. It is less necessary, as a full account of the structure of these plants will shortly be published in another place.

Abies, Link (*Picea*, Don, London).

1. **Pinus (Abies) bracteata**, Don, Parlatore; *Abies bracteata*, Hooker & Arnott.—Most nearly related anatomically to *A. religiosa*, but distinguished by the form of the leaf and by the non-resinous, yellow bud-scales, as well as by the conspicuous difference in the cones. Several cultivated and native specimens have been examined. The characters are very uniform, and, as far as observation goes, it is a plant that does not vary in appearance or in the structure of the leaf. Leaves pointed, stomata on under side of leaf only. Resin canals close to the epidermis of the under surface. Hypoderma forming a continuous zone under the epidermis of the upper side.

2. **Pinus (Abies) Fraseri**, Parsh.—Most closely related anatomically to *A. balsamea*, from which it can be distinguished by the appearance and position of the leaves, as well as by the very distinct cones. Although placed close to *bracteata* and *religiosa* by Parlatore, it is in no way related anatomically to these species. I have only examined one living specimen of this species, kindly sent to me by Mr. Fowler, from Castle Kennedy; and have examined a cone (without leaves) in the Museum, Royal Botanic Garden, Edinburgh, presented by Mr. Fowler, and grown at Castle Kennedy. Specimens from Kew Herbarium have also been examined—one from the summit of the Hoosack Mountains, Massachusetts; another from Canada; and a third from Newfoundland, named *Pinus americana*; but I am rather doubtful of the two last, as some leaves of *Fraseri* and *balsamea* approach each other exceedingly closely anatomically, and are not readily separated when dried specimens only are consulted. Leaves short, blunt at the points. Stomata on both sides of the leaf. Hypoderma slightly developed under the epidermis of the upper side. Resin canals in the parenchyma of the leaf.

3. **Pinus (Abies) religiosa**, Humb.—Most closely related anatomically to *A. bracteata*, but distinguished by the form and arrangement of the leaves, by the very resinous yellow bud-scales, and also by the cones. Living specimens have been examined from Glasnevin Garden, Dublin. An authentic specimen of *Abies hirtella* was examined from Kew Herbarium; it differs in having the leaves blunt and emarginate, and having only a few large, scattered hypoderm cells. As some of the leaves from the rather unhealthy plant in Glasnevin Garden exhibited a similar character, I am not disposed to consider *hirtella* a distinct species. Leaves long, sharp at the points; stomata on the under side of the leaf only. Hypoderma, forming a continuous, or only slightly interrupted, layer under the epidermis of the upper surface. Resin canals close to the epidermis of the under side of the leaf. *Pinus (Abies) Abies*, DuRoi.—As Parlatore unites *Abies pectinata*, De C.; *Abies Nordmanniana*, Spach.; *Abies Cephalonica*, Loudon; *Abies Apollinis*, Link; and *Abies Reginae-Amalie*, Heldr.; and makes them either synonyms or varieties, I must depart from his arrangement.

4. **Abies pectinata**, De Caudolle.—All the specimens of *A. pectinata* examined have the resin canals in the parenchyma of the leaf, and are thus at once separated from *A. Nordmanniana*. Leaves rounded or emarginate at the apex; stomata on the under side of the leaf only; hypoderma forming a very slightly interrupted layer under the epidermis of the upper side of the leaf; resin canals in the parenchyma of the leaf.

5. **Abies Nordmanniana**, Spach.—Closely related to *A. pectinata*, but has the resin canals in a different position. Leaves emarginate at the apex; stomata on the under side of the leaf only; hypoderma forming a slightly interrupted layer under the epidermis of the upper side of the leaf. Resin canals placed close to the epidermis of the under side.

6. **Abies Cephalonica**, Loud.—Very different from *A. pectinata*; more nearly related to *A. Nordmanniana*, but at once separated by the enormous development of hypoderma. *A. Apollinis*, Link, and *A. Reginae-Amalie*, Heldr., have both been examined. They can hardly be considered anatomically as being anything more than slight varieties of *A. Cephalonica*, having a slightly less development of hypoderma, and having the stomata more constantly present on the upper side of the leaf. Leaves pointed at the apex; stomata rarely forming a row or two on the upper surface of the leaf, generally confined to the lower; hypoderma well developed, forming a zone two or three cells thick under the whole epidermis of the upper side; resin canals placed close to the epidermis of the under side.

7. **Pinus (Abies) cilicica**, Antoine.—This Fir is extremely closely related anatomically to *Abies Nordmanniana*, but as I have not had the opportunity of examining an authentic cone-bearing shoot, I shall consider them quite distinct. Leaves obtuse and emarginate at the apex; upper surface with no stomata; hypoderma well developed, but consisting of rather scattered cells; resin canals near epidermis of lower side.

8. **Pinus (Abies) Pinsapo**, Boiss.—Living specimens only of this have been examined; and I have not been able to examine leaves from an authentic cone-bearing shoot. Related, although distantly, to *A. Nordmanniana* and *A. Cephalonica*, more nearly to *A. Baborensis*, but in all respects a remarkable, distinct form. Leaves projecting all round the stem, short, rigid, with a very sharp point; upper surface with six or eight rows of stomata, placed rather distantly over the whole surface, below with a band on each side of the midrib. Hypoderma well developed, often two or three cells thick, but forming a zone, interrupted by the stomata. Resin canals close to the epidermis of the under side.

9. **Abies Baborensis**, Coss (*Pinsapo*, Parlatore in part; *Abies Numidica*, De Lannoy).—Somewhat intermediate between *Pinsapo* and *Nordmanniana* in appearance, but differing anatomically in the presence of stomata on the upper side, and in the scanty development of the hypoderma. It is cultivated under the names of *Numidica* and *Baborensis*. Leaves short, blunt, or emarginate at the apex, above with one or two short rows of stomata near the apex, below with a band on each side of the midrib. Hypoderma scanty. Resin canals close to the epidermis of the under side.

10. **Pinus (Abies) balsamea**, Linn.—Closely related to *A. Fraseri*, and not easily separable anatomically. The cones of *A. balsamea* and *A. Fraseri* are sufficiently distinct. Leaves short, apex emarginate; upper surface with two or more rows of stomata in the middle line, near the apex, below with a band of stomata on each side of the midrib. Hypoderma wanting. Resin canals in the parenchyma of the leaf. *Pinus (Abies) firma*, Parlatore (not Antoine).—Parlatore gives *Abies bifida* and *Abies homolepis* as synonyms of his *P. firma*. In this I cannot concur.

11. **Abies firma**, Sieb. & Zucc. (not Parlatore).—Only two specimens of *firma* have come under my notice, both of them in Kew Herbarium, and named *firma*, Sieb. & Zucc. One was sent from Nagasaki, Japan, by Oldham, in 1862; the other was collected in Japan, Nippou, by Maximowicz in 1861. It is not in cultivation, all the plants I have seen under this name being *A. bifida*. *Abies homolepis*, Sieb. & Zucc., sunk by Parlatore as a synonym of *firma*, I have not seen; but, according to Bertrand, it only differs from *A. firma* in having fewer stomata on the under surface of the leaf, a character of no importance. *Abies brachyphylla*, Maximowicz, (*Pinus brachyphylla*, Parlatore), is anatomically the same as *Abies firma*. Leaves slightly wider near the apex than above the base, apex rounded and emarginate. A few stomata occasionally in a patch on the upper surface near the apex, below with a band on each side of the midrib. Hypoderma well developed. Resin canals in the parenchyma of the leaf.

12. *Abies bifida*, Sieb. & Zucc.—I have received the plant under the name of *bifida* from the Royal Botanic Garden, Edinburgh, and have compared it with an authentic specimen in Kew Herbarium. A narrower-leaved form is also cultivated (without a name) in the Edinburgh Garden. It is the form cultivated as *Abies firma*, and has been sent me under this name from Messrs. Veitch, and from Castle Kennedy. Mr. Fowler sent me a "late variety," in one of the leaves of which there was a slight abnormality, the resin canal of one side being slightly distant from the epidermis. Leaves tapering towards the bifid apex; no stomata on the upper surface, below with a band on each side of the midrib. Hypoderma well developed. Resin canals close to the epidermis of the lower side of the leaf. Parenchyma of the mesophyll of the leaf with numerous scattered, elongated, unbranched, greatly thickened, liber-like cells (idioblasts), quite peculiar to this species. Pinnus (*Abies*) *holophylla*, Parlatores. —One of Maximowicz's species, of which I have seen neither living nor dried specimens. Since the above was written I have been able, through the kindness of Professor Oliver, F.R.S., to examine an authentic specimen of *A. holophylla*, Maxim., from Kew Museum. It is a distinct form, not yet in cultivation. Pinnus (*Abies*) *holophylla*, Parlatores.—The examination of an authentic specimen in Kew Herbarium, *Abies brachyphylla*, Maxim., Japan, Yokohama, 1862, shows that *A. brachyphylla*, Max., is *A. firma*, Sieb. & Zucc. (not Parlatores), while *A. firma*, Parlatores (not Ant.), seems to have been described from a mixed set of specimens of *firma* and *bifida*.

13. *Pinus* (*Abies*) *Pindrow*, Royle.—Closely related anatomically to *A. Webbiana*, and differing more in the outline of the transverse section than in the actual structure. Living specimens from Glasnevin Garden and Elvaston Nurseries have been examined. Leaves long; apex bifid, with two narrow sharp points. No stomata on the upper surface of the leaf. Hypoderma forming an interrupted layer of cells. The margin of the leaf sharp. Resin canals close to the epidermis of the lower side of the leaf.

14. *Pinus* (*Abies*) *Webbiana*, Wall.—Closely related to *A. Pindrow*. A third form has come under my notice, the first specimen in the Herbarium of Trinity College, Dublin, from the Himalayas, named *A. Webbiana*, from Hooker fil. and Thomson's collection; and a second specimen of the same thing bearing a cone, from Royal Botanic Garden, Edinburgh, and named *A. Pindrow*. Both these are distinguished by the position of the resin canal, which is in the parenchyma of the leaf. It requires further investigation. Leaf slightly contracted towards the bifid apex, the two portions either small and very sharp, or slightly rounded. No stomata on the upper side of the leaf. Hypoderma forming an interrupted layer of cells. Margin of the leaf rounded. Resin canals close to the epidermis of the lower side of the leaf.

15. *Pinus* (*Abies*) *sibirica*, Tarcz.—Cultivated in the Royal Botanic Garden, Edinburgh, and in the Glasnevin Garden, Dublin, under the name of *A. Pichta*. Also received from Elvaston Nurseries as *A. sibirica*. Anatomically a most distinct species, most nearly related to *A. balsamea* and *Fraseri*, but at once distinguished by the form of the leaf, the total absence of any trace of hypoderm cells, and the absence of stomata on the upper surface of the leaf. Leaves with the apex rounded or slightly truncate. No stomata on the upper surface. Hypoderma wanting. Resin canals in the parenchyma of the leaf.

16. *Abies amabilis*, Douglas (not Parlatores).—Many specimens of this species have been examined. It is the *amabilis* of gardens, the *Abies grandis* of *A. Murray* ("Synonyms of Various Conifers," p. 18), who figures the peculiar arrangement of the leaves (Op. Cit., p. 19, fig. 20). It is cultivated in the Royal Botanic Garden, Edinburgh, at Elvaston Nurseries, and by Mr. Anthony Waterer, as *amabilis*. Three specimens in Kew Herbarium, collected by Dr. Dyall, have also been examined. On the Continent it is known as *Abies spectabilis*, Herpin de Fremont, (teste, Bertrand). Parlatores confounds it with *lasiocarpa* of Hooker and *Abies bifolia* of Andrew Murray, the description given by Parlatores referring to *bifolia* (Murray). This species was sent home by Jeffrey as No. 409, and was described and figured as *Picea lasiocarpa* (Balfour). No plants seem to have grown from Jeffrey's seeds, as all the plants called *lasiocarpa* are *grandis*. The examination of the original specimen in the Museum, Royal Botanic Garden, Edinburgh, enables me to state with confidence that *A. lasiocarpa* (Balf.) is *A. amabilis* (Dougl.). Mr. Murray's figures (Op. Cit., p. 31, figs. 1 and 2) also prove the same thing. *A. lasiocarpa* (Hook.) is a distinct thing, and equals *A. bifolia* (*A. Murray*), *A. amabilis* (Parlatores). Leaves rounded and emarginate at the apex, peculiarly arranged, forming two lateral rows, and those on the upper side of the shoot twisted so as to bring their upper surfaces superiorly, and placed with their axes nearly parallel to the long axis of the shoot. No stomata on

the upper surface. Hypoderma well developed, forming a thick, slightly interrupted layer of cells. Resin canals close to the epidermis of the under side of the leaf.

17. *Abies lasiocarpa*, Hooker (not Balfour); *A. bifolia*, *A. Murray*, Syn. var. Conif., p. 31; *A. amabilis*, Parlatores, (not Dougl.)—Very different anatomically from *A. amabilis*, with which it is confounded by Parlatores. It was confused by the Oregon Committee and Jeffrey with *Pseudotsuga magnifica*, both plants being mixed in Jeffrey's (No. 1180) in the Museum, Royal Botanic Garden, Edinburgh. I have examined Hooker's type specimen in Kew Herbarium, a specimen sent by Douglas in the same Herbarium, five specimens from the Oregon Boundary Commission collected by Dr. Lyall in 1860-61, with the native name "Marielp." It is also *P. bifolia* of Murray. I have examined specimens from M. Roezl, sent to me by Mr. Syme. The only living plants observed were seedlings from Elvaston Nurseries. None of the seeds sent out by the Oregon Committee seem to have germinated. A glance at the figures of the bracts given by Mr. Murray in his work already quoted, p. 31, figs. 1 and 12, will show that *lasiocarpa* (Hook.) equals *bifolia* (Murray). Leaves of two kinds, those on the vegetative branches rounded or emarginate, on the cone-bearing shoots sharp and pointed. Stomata on both sides of the leaf. Hypoderma well developed. Resin canals in the parenchyma of the leaf.

18. *Pinus* (*Abies*) *concolor*, Engel.—A very distinct form, related to *Lowiana* and *grandis*, and more distinctly to *amabilis*. I have only seen dried specimens from Engelmann (No. 828) in the Herbarium at Kew and Trinity College, Dublin, and have not as yet seen it in cultivation in this country. Bertram (Op. Cit., p. 90) gives the anatomical characters of *A. concolor* as those of *grandis* (Lindl.), and cites *grandis* and *lasiocarpa* as synonyms, *grandis* of Douglas being Bertrand's *Gerdouiana*. Leaves obtuse at the apex, closely covered with stomata on both sides. Hypoderma scanty. Resin canals touching the epidermis of the under side of the leaf.

19. *Pinus* (*Abies*) *grandis*, Dougl.; *Abies amabilis*, *A. Murray*; *Abies Gordoniana*, Carrière; *Abies lasiocarpa*, Hort. (not Balf. or Hooker).—A very distinct form (No. 393 of Jeffrey), the scale of which is figured by Mr. Murray (Op. Cit., p. 25, fig. 32). Known commonly in gardens under the names of *grandis* and *lasiocarpa*. It is *A. Gordoniana* of Carrière and Bertrand. This species can be distinguished with the greatest ease from all its allies by the hypoderma of the leaf, as well as by the bracts of the cone. Leaves obtuse and emarginate at the apex, without stomata on the upper surface (very rarely with two or three in a small cluster near the apex). Hypoderma consisting of a few scattered cells under the upper epidermis. Resin canals touching the epidermis of the under side of the leaf.

20. *Abies Lowiana*, Murray; *Picea Lowiana*, Gordon; *Pinus* (*Abies*) *grandis*, Parlatores in part; *Picea Parsonsi*, Hort.; *Picea lasiocarpa*, Hort.—Closely related to *Abies grandis*, but distinct. Separated by the different development of hypoderma, by the presence of the stomata on the upper side, and, when growing, by the paler, more yellow colour of the young leafy axes. It is cultivated extensively, and passes under different names, such as *Lowi*, *Lowiglanca*, *Parsonsi*, and *lasiocarpa*. Then it was described in 1862 by Mr. Gordon as *Picea Lowiana*. Leaves long, narrow, obtuse or emarginate at the apex, with a broad band of stomata on the upper surface, running in the middle line from base to apex. Hypoderma well developed. Resin canals touching the epidermis of the under side.

21. *Pinus Abies Veitchi*; *Pinus selenolepis*, Parlatores; *Abies Veitchi*, Carrière; *Picea Veitchi*, Lindl.—Only a single specimen of the remarkably distinct form has been seen. It is in Kew Herbarium, and bears two labels, "*Abies microserma*," and "*Picea Veitchi*," (Lindl.). It has nothing to do with the *Abies Veitchi* in cultivation. Leaves obtuse and emarginate at the apex. Stomata on the under surface of the leaf only. Hypoderma wanting. Resin canals in the parenchyma of the leaf.

22. *Abies Harryana*, new species; *Abies Veitchi*, Hort., Veitch, not of descriptions.—This is the plant cultivated as *A. Veitchi*, and sent to me under that name by Messrs. Veitch. It differs in appearance from true *Veitchi*, and can be at once separated anatomically by the great development of the hypoderma, and by the position of the resin canals. If farther investigation confirm the opinion that it is new, the name *Harryana* will be retained in compliment to Harry J. Veitch, Esq., the head of the firm of Veitch & Sons, in London. Leaves acute at the apex. Stomata on the under surface of the leaf only. Hypoderma forming a continuous or almost continuous layer under the epidermis of the upper side of the leaf. Resin canals touching the epidermis of the under side.

23. *Abies* sp., from Drummond.—A single plant, in the Royal Botanic Garden, Edinburgh, has been examined, and I fail to refer it to any of the forms already noticed.

Pseudotsuga, Carrière.

Leaves not in cushions, but inserted directly into the stem, as in *Abies*. Two resin canals, one on each side of the leaf. Fibro-vascular bundle single.

1. *Pinus (Pseudotsuga) nobilis*, Dougl.; *Abies nobilis*, Linn.; *Picea nobilis*, Loudon.—Very many specimens of *P. nobilis*, native and cultivated, have been examined. The leaves are rather variable, being flattened in young plants, and on the cone-bearing shoots approaching that of the next species, *P. magnifica*. Leaves projecting upwards on the upper side of the shoot; leaf with an obtuse apex; stomata on both sides of the leaf; leaves on the vegetated shoot furrowed on the upper side; hypoderma chiefly developed at the margins of the leaf and below the longitudinal furrow; resin canals close to the under surface of the leaf.

2. *Pinus (Pseudotsuga) magnifica*; *Abies magnifica*, A. Murray; *Abies amabilis*, Parlatore; *Abies robusta*, Hort.—Many specimens of this have been examined, both cultivated and native. The specimens from Lobb are in Kew Herbarium. It was also sent home by Jeffrey (No. 1480, part), and is extensively cultivated in the Royal Botanic Garden, Edinburgh, under the names *magnifica* and *robusta*. It is very closely related to *P. nobilis*, but separated at once by the short bracts of the cone. The bracts are well figured by Mr. Andrew Murray, Syn. of var. Conif., p. 28, fig. 42. It is difficult to understand how Parlatore could have confounded it with his *P. amabilis*, and it seems inexcusable when he had Mr. Murray's most excellent figures before him. A specimen of *amabilis* (Douglas) in Kew Herbarium, and sent to me by Professor Oliver as the type of Douglas' species, is either *magnifica* or *nobilis*, so that some confusion must have been made at a very early time. Further investigation will, however, be made on this point. Leaves rounded or acute at the apex, more or less tetragonal, not grooved on the upper surface; stomata on both sides of the leaf; hypoderma well developed; resin canals close to lower epidermis, surrounded by hypoderma.

3. *Pseudotsuga Davidiana*, Bertrand.—A species from Thibet, unknown to me, and described by Dr. C. E. Bertrand, Op. Cit., p. 82. It is not in cultivation.

4. *Pinus (Pseudotsuga) Douglasi*, Sabine.—The characters of specimens of *Douglasi* seem variable, and I have seen two distinct plants under this name. The large plant in the Royal Botanic Garden, Edinburgh, may be taken as the type of the one form. The other I have only seen Herbarium specimens of, one from Kew, and two from the Herbarium of Trinity College, Dublin. These latter—the Herbarium specimens—are all distinguished by the presence of remarkable, star-like, thickened cells of large size lying in the parenchyma of the leaf. The specimen from Kew Herbarium is from the Rocky Mountains, and marked *Douglasi*. The next, from Trinity College Herbarium, is from New Mexico, C. Wright (No. 1885). The third is from the same Herbarium, and was collected by Fendler in New Mexico (No. 829). Parlatore cites this plant as belonging to *P. amabilis*, but it is anatomically identical with Wright's specimen referred by Parlatore to *Douglasi*. Further observation is wanted to clear up the difficulties in the synonymy.

5. *Pinus (Pseudotsuga) Fortunei*, Parl.; *Abies Fortunei*, Lindl.; *Abies Jezoensis*, Hort.—A very distinct form, closely related to *Abies Veitchi* (Hort., Veitch), *A. Harryana* mihi, differing only in the larger leaf and single fibro-vascular bundle. I am indebted to Messrs. Veitch for the only living specimen I have seen. It is well described and figured by Mr. Andrew Murray in his "Sketch of the Conifers of Japan." Leaves long and pointed. No stomata on the

upper side of the leaf. Hypoderma not very well developed. Resin canals close to the lower epidermis.—Dr. McNAB in "Proceedings of the Scottish Arboricultural Society."

Berberis Darwini and its Uses.—This is one of the hardiest and most beautiful of the family to which it belongs, and one which certainly ought to find a place in every shrubbery, however small. About a month ago I saw a large plantation of this Berberry in a nursery, and noted great differences amongst the plants as regards the time of flowering. In some the blossoms were dropping off, others were just unfolding them, whilst the buds of a later section were scarcely visible. There is a successional character about the flowering of this *Berberis* that does not exist, so far as I have noticed, in the others. What a delightful wall plant it makes! A stretch of low wall covered with it at this season and earlier would be a sight worth seeing, and the long sprays, loaded with small golden balls, are not bad subjects for indoor or room decoration. Even when not in flower, its neat foliage and bushy habit make it one of the most useful and attractive of low-growing, evergreen shrubs.—E. HOBDAV.

Simple Materials for Artistic Planting.—We search the world over for "new" things, and it is well, for the greater the store of valuable trees and shrubs the more beautiful of course will our garden pictures be; but there is one thing that is quite as much to be desired, and that is the knowledge to make the most of many simple materials in abundance around us. Take, for example, such trees as the Birch and the Lombardy Poplar—trees abundant everywhere. One could not desire more beautiful objects or those which give more striking effects when properly placed, yet how seldom do we see such materials used as an artist would use them, though the planter may be an artist, too, in his own way, and has the advantage of dealing with the natural objects and not with pigments representing them. In addition to such well known subjects as the above, there are many others equally useful, but which are rarely ever used intelligently, as, for example, the Osier, with its showy twigs which look so bright in sun or shower. We desire not, however, to pick out all such subjects as deserve attention (the catalogues of our tree and shrub nurseries contain the names of many), but rather to insist on the need of so arranging each subject that the fullest expression of its beauty may be obtained.

The pell-mell universal mixture of our gardens is their ruin. There are many and various ways of remedying this; some trees, where there is abundant room, may be seen to greatest advantage in groves; others in groups, others singly, some in all three ways. The mixed system itself, if judiciously carried out, would be an agreeable change. Apart from this consideration, however, and more important still, is the disposition of the trees in relation to others near, or to lawns, or water, or rocks, or soil, or climate. But underneath all the varying conditions that may arise, one rule may be safely kept in mind, and that is, that only real and lasting success can arise from planting when each subject used, be it common or rare, is so placed that it may in time show all the beauty and character that belong to it.

PARK TREES.

WHITE AND SCARLET THORNS form excellent park trees, making shapely heads, and attaining a good size, though they can hardly be said to be timber trees. As they are rather slow-growing subjects, good, tall-stemmed trees may be planted in groups here and there in association with them, and they should be protected from cattle for a time by means of a wire fence. Paul's Scarlet Thorn is the best of its class, and should find a place in every collection. Beech, Horse Chestnut, and several others are favourites as park trees; but cultivators entertain an objection to the Spanish Chestnut in plea-



Grove of Poplars at Ermenonville.

sure grounds from its habit of casting its leaves during summer; that is, however, a trifling matter, considering the highly ornamental character of the tree, which is one of the best that can adorn a lawn, but it must have room all round it. The Weeping Birch is another subject highly deserving of a good position in all ornamental grounds. The general impression with regard to the Birch is that it is too thin-habited a tree when planted singly for ornamental purposes; but this does not apply to the true Weeping variety, which is perfectly symmetrical in shape and particularly graceful in habit, the branches even in old trees, drooping right down to the ground. Some of the finest Weeping Birches in this country stand, we are informed, on the banks of the river Findhorn, in Morayshire: they are very lofty, and the branches exhibit pendent masses of spray 10 ft. in length. The Weeping Birch is a very beautiful riverside tree. When planted on lawns the Grass should not be cut too closely about its roots, as they run quite near to the surface, a long way from the trunk, and when they are wounded about the time of the rising of the sap they bleed profusely; in fact, the Birch may be tapped like the Sugar Maple. A hole bored about 2 in. deep in a stout limb will yield nearly half-a-dozen quarts of sap 'in a day, and it is wholesome to drink. Trees of the Weeping Birch form round or rather conical heads when planted singly, and the branches droop gracefully to the ground; but they are also very ornamental when planted in masses about lake sides and rivers, and they may often be introduced with excellent effect among other trees, their pendent masses of foliage associating well with most other kinds of vegetation. It is hardly necessary to speak of the hardiness of the Birch, for, as is well known, all the varieties of it are natives of temperate or cold regions. In the highlands of Scotland, and in upland and cold districts elsewhere in this country, it is a rapid-growing tree, and the wood is excellent for various purposes, particularly for making charcoal. We have plenty of tried subjects for planting amongst our English forest trees without resorting to doubtful novelties. Compare, for example, the common Silver Fir and the common Spruce with some rare species. Neither the Silver Fir nor the Spruce is reckoned of much account as an ornamental tree; nevertheless, when planted in suitable situations, in a damp climate, and in a tolerably moist soil, either of them—especially the Silver Fir—far surpass some of the more recent and popular introductions. Both are perfect in their shape, grow nearly 100 ft. high, and retain their branches, even when grown thickly together, down to the very ground. Thousands of such examples are to be seen in the valleys of the west of Scotland. Then among other park trees we have the Holly; it will grow 40 ft. high, and nearly half as wide, if it have room, and be perfect in shape, and when covered with fruit it cannot be surpassed. We have seen such specimens that were valued more than any other tree in the grounds. Why is it not planted in our parks more extensively instead of in hedgerows, and as underwood only? Is it because its capabilities are not understood? If any one who reads this has a fairly-shaped tree and will move it next May to a tolerably sheltered situation, providing a bit of good soil for it if the land be naturally poor, they will see what it will do in a year or two. Whatever trees are employed to form groups or single specimens, it must never be forgotten that they must be planted with that object, and not crowded together, or, if they have originally been planted thickly, early thinning must be attended to.

CHEF.

RULES FOR WILLOW PLANTERS.

1st. Never transplant a Willow if a cutting can be used, for all Willows succeed better from cuttings than they do from rooted plants. 2nd. After planting, keep them clean; never allow weeds to choke or overpower them. 3rd. No Willows do well in water-logged land, nor in peat bog, nor in dry sandy soil. The best soil for an Osier plantation is a strong loam, and the most favourable position where they can be flooded at will and yet the land be well drained. 4th. In England, Willows may be planted at any time from the middle of November to the end of March. 5th. If practicable, break up the ground by a steam cultivator, which is cheaper than ordinary trenching, and quite as good. This should be done early, to ensure the ground being in good condition for planting, for if cuttings be stuck into unbroken clods, failure may be expected. 6th. In planting basket Willows secure, at whatever cost, the best sorts, and free from mixture, taking care that the species is suited to the soil, and adapted to the market; it is false economy to plant whatever comes convenient (a mixed crop is always of small value), and a Willow plantation in suitable soil will last from fifteen to thirty years. 7th. When cuttings are planted with the view to grow into timber trees, cut to the ground, at the end of the first season, all crooked and defective shoots, for the first year's shoots seldom grow straight enough to be allowed to stand for timber trees. 8th. Protect all young plantations from ground game, for even the buds of bitter

Willow are not proof against rabbits or hares. 9th. Never pollard a Willow; pollard Willows decay, and, in that state, harbour destructive insects; better and straighter poles are obtained by cutting to the ground. 10th. Willows make good wind screens or nurse trees; and the Long-leaved Salix or *Salix acuminata* stand well on the sea coasts or other exposed situations: some of the varieties of this species make good poles for fencing or general farm purposes, but they are not otherwise commercially valuable. 11th. After cuttings are put into the ground let the latter be firmly trodden down around them; many cuttings die from this being only partially done. 12th. Do not plant cuttings when the bark is much chafed or broken; on the contrary, throw them aside. 13th. Do not plant little corners with basket Willows and expect such scraps to pay; it would be just as reasonable to plant a rood of ground with Wheat and expect to make a profit out of it: if such bits are to be planted, plant them for poles or timber; in this form they will pay well, but they can never pay to cultivate for basket Willows. 14th. Willows will grow on land occasionally overflowed by salt water, provided it is suitable in other respects. 15th. In collecting Willows for scientific observation or classification, avoid decision until you have grown them in a trial ground and compared them with others similarly situated, Willows being so much altered by soil, situation, and climate as to be unrecognisable even by those who have studied them for years: if this plan be adopted, much of the confusion that now exists will be avoided, and many of the so-called species will be found to be only varieties. 16th. Willows planted on the banks of rivers are of great value in preserving the soil from being washed away, by reason of the grasp and tenacity of their long fibrous roots. 17th. At the present price of cuttings and labour, the outlay for planting basket Willows, including everything, may be stated at 25s. per 1000 cuttings, which at 20,000 cuttings per acre—the ordinary quantity—would be £25, and, unless under very exceptional circumstances, this may be taken as the ordinary cost of forming an Osier plantation. 18th. The importance of planting quick-growing timber trees in a country so limited in area as ours, is admitted; and the Willow is not only one of the best trees for this purpose, but no wood sells more readily, nor is so difficult to obtain, nor will yield a greater return. 19th. All cuttings should be pushed from 8 in. to 10 in. into the soil, and in a slanting direction. 20th. The number of cuttings required for an imperial acre is as follows:—18 in. each way, 19,360; 21 in., 10,800; 36 in., 4848; 48 in., 2722.—WILLIAM SCALING, *Basford, Notts.*

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

APRIL 5.

This meeting, which was a very interesting one, was well supported, admirable groups of Orchids, fine-foliated plants, and spring-blooming shrubs being contributed by the principal trade growers. The Orchids, Crotons, and Gloxinias from Messrs. Veitch & Sons, the well-flowered Rhododendrons sent by Messrs. Lane, and the artistic group of decorative plants arranged by Mr. John Wills, were especially effective; as were also some choice Orchids furnished by Mr. Michaels, Mr. W. Terry, and Sir Trevor Lawrence. Messrs. J. Standish & Co., Ascot, had a beautiful group of double-white Azaleas and Lily of the Valley, fringed with well-grown plants of the new Maiden-hair Fern (*Adiantum gracillimum*); and very attractive groups of miscellaneous plants came from Mr. B. S. Williams, Messrs. Rollisson, and others.

First-class Certificates.—These were awarded to the following new plants:—

Clematis Aurora (Noble).—A semi-double flower of the J. Gould Veitch or Fortunei type, having lance-shaped segments of a rosy-colour shot with lilac. The plant exhibited was but a small one, and only bore a solitary flower; when better established, however, it will doubtless prove more floriferous.

Primrose, Brilliant (R. Dean).—A bold and distinct variety, the rich, full, crimson-tinted petals surrounding a bright golden centre or eye. The plant is robust in habit, and its flowers are well elevated on stout stalks. It is a valuable addition to dark-coloured, hardy Primroses.

Cyclamen persicum, Brilliant (R. Clarke).—A compact-habited plant, its heart-shaped leaves being distinctly marbled with silvery-grey on a darker ground. Its flowers are rather small, but wonderfully dense and vivid in colour, their tint being midway between ruby and crimson-purple. It is well worth culture as a seed-parent, and contrasts well with the paler-tinted kinds.

Dendrobium sculptum (Sir T. Lawrence).—This plant belongs to the D. speciosum section, which it closely resembles in growth, except in being more slender. The flowers are borne in clusters of five or six together, the sepals and petals being pure white, and the saddle-shaped lip flat with a blotch of orange in the centre. The flowers are 2½ in. wide and delicately fragrant.

Nephrolepis Duffii (Veitch).—This elegantly-crested Fern has previously received a certificate and been described.

Anthurium Scherzerianum Wardi (Veitch).—Undoubtedly the best variety in cultivation of a well-known and handsome plant, some of the spathe being nearly 7 in. in length, and over 5 in. in breadth. It is named in compliment to Mr. Ward, gardener to the late Mr. F. Wilkins, Leyton, and was recently acquired by Messrs. Veitch & Sons at a cost of nearly £80.

Alsophila pycnoarpa (Veitch).—Previously certificated and described.

Pultenæa rosea (Rollisson).—A pretty, rosy-flowered, Australian shrub, previously certificated and described.

Dendrobium barbatulum grandiflorum (Sir T. Lawrence) was awarded a second-class certificate.—This is a large-flowered form of the plant grown in some gardens under the name of *D. Fytchianum*; it bears from ten to twenty white flowers on a slender raceme produced from near the apex of the leafless pseudo-bulbs. The individual flowers measure from 1½ in. to 2 in. across, and are pure white, or in some cases very faintly tinged with rose or lilac. Well worth culture.

Miscellaneous Plants.—Messrs. Veitch & Sons, Chelsea, contributed a choice group of new and rare Orchids, among which we noted several species not previously exhibited. *Epidendrum Wallisi* is a graceful-habited plant, its slender stems being about 18 in. in height, and clothed with distichous, grassy leaves; the flower in this case was solitary and terminal, and about 1½ in. in diameter, the sepals and petals being golden-yellow, the lip broadly fan-shaped and lobed, whitish, streaked with purplish-brown. *Sarcantus Fitzgeraldii*, to which a botanical commendation was awarded, is another pretty little Australian plant, where it is said to grow in very moist positions, and has distichous leaves from 3 in. to 6 in. in length, from which arise a spike bearing six or eight pure white flowers nearly 1 in. across, of circular outline, the base of the segments being dotted with rose. Several varieties of the golden-lipped *Oncidium varicosum* were much admired; as was also a well-bloomed plant of *Vanda cristata*, the flowers of which are of a grass-green colour, the saccate, trilobed lip being white streaked with blackish purple. *Odontoglossum*s were represented by several varieties of *O. Cervantesi* and *O. Roezli*, and its white variety; the same firm likewise sent *Acrides suavisimum*, *Vanda coerulescens*, *Masdevallia Lindenii*, *Lycaste alba*, *Cypripedium Druryi*, *Angraecum sesquipedale*, *Dendrobium Wardianum*, and others. A fine plant of the deliciously fragrant *Cattleya citrina* bore six or eight flowers. Among hybrid Orchids in this group were *Cypripedium seligerum*, *C. vexillarium* (one of the most distinct in the whole section), *C. Marshallianum* and *tesselatum*, the two latter bearing two-flowered spikes. A group of remarkably large and richly coloured seedling *Gloxinias* from Messrs. Veitch contained some distinct and very effective kinds, one of the best being Mr. Gladstone, a dense, rosy-crimson variety, with a clear creamy-white throat; *Excelsior* is another crimson variety, having a densely speckled throat; and *Prince Arthur* a good purple. All these varieties are remarkable for size, substance, and vivid colouring. Messrs. Veitch also showed a group of new *Crotone*s, the varieties being *Earl of Derby*, tortile, *Disraeli*, *M'Arthurium*, variable, and *Yongei*, all well grown and vivid in colour. A splendid plant of the scarlet-spathed *Anthurium Scherzerianum Wardi* bearing ten enormous bracts was very attractive. *Panax laciniatus* received a botanical commendation. A fine example of the Californian Pitcher-plant (*Darlingtonia californica*) bearing pitchers 15 in. or more in length, and a flower-stem nearly 2 ft. in height, came from Lady Dorothy Neville, Dangstein, and was awarded a cultural certificate. Mr. John Wills sent a tastefully-arranged group of Orchids, Palms, Ferns, and other decorative plants (plunged in a bed of blue Forget-me-nots), *Isolepis gracilis*, *Spinea japonica*, and the scarlet-spathed *Anthurium Scherzerianum*. Some well-grown *Cardodoxias* in this group were arranged with excellent effect. Messrs. Rollisson & Sons exhibited a miscellaneous group of Heaths, spring flowers, succulents, and Orchids, all in admirable condition; conspicuous in this group was a large-flowered form of *Phalenopsis amabilis*, the petals of which are very circular and perfect; the new rosy *Pultenæa* in the same group was also very effective. Mr. B. S. Williams, Holloway, furnished a couple of well-grown pyramid specimens of *Azalea amena*, and also a large and well-bloomed example of *Imantophyllum miniatum*. Messrs. F. & A. Smith, Dulwich, sent cut blooms of *Cinerarias* bright in colour; also plants of *Ficus elastica*, very faintly variegated with light or olive-green tints on a dark green ground. In the same group was a vigorous plant of a fine form of the orange-flowered *Imantophyllum miniatum*, named *Dulwich Beauty*, but which has long been known on the Continent as *I. miniatum splendens*. A large and well-flowered group of forced *Rhododendrons* came from Messrs. H. Lane & Sons, Berkhamsted, the most conspicuous sorts being *R. maculatum grandiflorum*, carmine, dotted with black; *Nero*, blackish purple; *limbatum*, fiery rose and white; *Etandard de Flandres*, lilac spotted with brown; *Empress Eugenie*, pale lilac; *Auguste Van Geert*, crimson purple; *Towardi*, rosy-lilac, very good truss; *Purity*, white; *Prince Camille de Rohan*, rosy-white spotted with brown, elegantly frilled petals; and *Ne Plus Ultra*, a rich violet-purple: with these also came a stand of cut *Roses*, consisting of *Tea* scented and other kinds. Mr. H. J. Elwes contributed a six-flowered truss of the large-flowered creamy-white *Rhododendron Nuttalli*, the individual blooms of which are nearly 5 in. in diameter, and delicately fragrant. Mr. W. H. Michaels, Cholmeley Park, sent a fine variety of the rather rare *Odontoglossum Andersonianum*, bearing two spikes, on one of which we counted thirteen richly-spotted lilac flowers. A very delicate lilac-tinted form of *O. Alexandræ* also came from the same exhibitor.

A small but remarkably well-grown group of Orchids came from Mr. J. G. Hepburn, among which we noted two well-bloomed plants of *Dendrobium infundibulum*, and a well-flowered example of *Dendrobium lituiflorum*, bearing two densely-flowered pseudo bulbs; a small specimen of *Arpophyllum giganteum*, which bore five spikes of rosy, shell-like flowers closely packed in cylindrical spikes; a good plant of *Cattleya citrina* bore three large and massive flowers; but the gem of the whole group was a plant of *Odontoglossum Roezli* bearing nine or ten flower-spikes, on which eleven flowers were fully expanded. Mr. W. Terry, Peterborough House, Fulham, contributed a well-grown group of Orchids, in which we noticed the old *Brassavola nodosa*, a richly-coloured form of *Oncidium sarcodes*, *Phalenopsis grandiflora*, *P. Schilleriana*, and a small-flowering plant of the purple *Cattleya Skinneri*. A small-flowering specimen of *Wigandia caracasana* came from the Society's garden at Chiswick; its blossoms are borne in a terminal panicle, and are of a lilac-purple colour, each being about 1 in. in diameter. Mr. Green, Holmesdale Road Nursery, Reigate, sent the elegantly-cut, grassy-leaved *Psemanthes dissectus elegans*, a most graceful decorative plant, said to be the result of a cross between *P. pinnatus* and *Sonchus arboreus*. Mr. G. F. Wilson showed a small-blooming specimen of *Cucumis himalayensis* with slender scandent stems, bright green, heart-shaped, notched leaves, and large, golden-yellow flowers 3 in. across. Mr. R. Clarke, Twickenham, sent three seedling forms of *Cyclamen*, one named *Brilliant* having small but vivid ruby-tinted flowers. Mr. H. Bennet, Manor Farm Nursery, Stapleford, exhibited a new English *Rose*, named *Mabel Morrison*, said to be a sport from *Baroness Rothschild*; it is an elegantly-cupped variety with well-formed shell-like petals; the colour is white delicately flushed with faint salmon-flesh; it is a decorative variety, and one which the committee desired to see again. From the same exhibitor came a fine batch of the *Rose Duchesse de Vallambrosa*, which was certificated at the last meeting. Mr. R. Dean sent a large and varied group of Primroses and laced *Alpine Auriculas*; among distinct kinds we noted *Primula denticulata*, *P. purpurea*, and the snow-white *P. nivalis*; the delicate blue *Aemone apennina*, and the scarlet *A. fulgens* were also represented by well-grown plants. From Messrs. J. Standish & Co., Ascot, came a tastefully-arranged group of Ferns and flowering plants, among them well-grown specimens of *Adiantum gracillimum*, the new *Filiferia Palm* (*Pritchardia filifera*), small plants of the coral-flowered *Echmea miniata splendens*, well grown *Lily of the Valley*, and *Azaleas*, one of the most conspicuous of which was the double-flowered *A. Borsig*, a kind with flowers of a very whiteness. A seedling *Myosotis*, named *Beatrice*, was shown by Mr. Groves, Shortlands, Kent; it has large, clear blue flowers, ½ in. in diameter, and the committee desired to see it again. A well-grown plant of *Anthurium Scherzerianum album* came from Messrs. Veitch & Sons, together with cut specimens of the *Luga pulcherrima*, bearing vivid crimson tassel-like flowers in dense clusters, hanging gracefully from the axils of the finely-cut leaves.

Fruits and Vegetables.—Exhibits under this head were limited. Mr. W. Rapley, gardener to R. Hudson, Esq., Clapham Common, contributed a brace of Cucumbers named *Osmaston Manor*; they were considerably over 2 ft. in length, and remarkably fresh and handsome in appearance. Mr. James Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, Acton, sent some well-grown Mushrooms. Mr. H. F. Jones, The Gardens, Bentley Priory, Stanmore, furnished white and purple-topped varieties of *Scakale*.

NOTES AND QUESTIONS—VARIOUS.

Forsythias in the Landscape.—Although these valuable shrubs are not showy when seen close at hand, they are visible and even telling for long distances; therefore they are well fitted for the banks of lakes and like positions, where they may be seen from a distance: their hardiness and free-flowering qualities make them most valuable.

Clivias for Conservatory Decoration.—*Clivias* will be found to be very useful for indoor winter decoration, their Lily-like, orange and cinnamon-coloured flowers being produced from October to May. They are best grown in small pots—say 6-in. to 8-in. ones—as the flowers can then be seen to better advantage than in the case of large specimens. They succeed best in a light, airy house where they can have plenty of water, when, if grown in good fibrous loam, they are little inferior as regards effect to *Vallota purpurea*.—S.

Birch Wine.—I have read with both profit and pleasure the notes on the "Plant-lore of Shakespeare," contributed to THE GARDEN by "H. N. E." who I am sure will excuse me for pointing out that although beer is now seldom made from Birchen twigs, yet it is by no means an uncommon practice in some country districts to tap the white trunks of Birches, and collect the sweet sap which exudes from them for wine-making purposes. In some parts of Leicestershire this sap is collected in large quantities every spring, and Birch wine, when well made, is a wholesome and by no means an unpleasant beverage.—B.

Fruit Prospects in Suffolk.—Apricots have got severely browned; under glass copings, however, and also under a few overhanging boughs, the germs are yet safe. Peaches are in full flower and look strong and well. Pears on pyramids are generally full of blossoms, though some of the taller standards are thin; the forward blossom-buds are much browned by frost and pecked by birds. Apples are fairly well budded. Plums and Cherries are full of buds. Gooseberries look well, and are now showing fruit. Currants and Raspberries set abnormally late. Strawberries have suffered much from the constant rains, and many of the plants have a somewhat debilitated appearance.—D. T. F.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

HARDY CACTI.

I AM glad to find attention directed to this subject (see page 275). Nearly three years ago, in Dr. W. A. Bell's garden at Manitou, Colorado, I saw a collection of eight or ten species of hardy Cacti, which had been found in the neighbourhood, and which were grouped together on a bit of rough rockwork. A finer display I have seldom seen of all shades of yellow, crimson, and scarlet, than these presented, and I cannot but think that the Colorado Cacti would succeed perfectly in England. They are undoubtedly hardy, as I have seen the thermometer at Manitou, seventy miles south of Denver, go down to 22° below zero (Fahrenheit), and in parts of the State where *Opuntia Rafinesquii* grows freely, the snow sometimes lies for two or three months. The moisture and want of actual sunlight of our English climate would of course be somewhat against them, as in Colorado the sun is powerful even in winter, and is seldom obscured by clouds or mist for more than five or six days from November to April; the atmosphere, too, is extraordinarily dry. As, however, *O. Rafinesquii* succeeds in England, I can see no reason why other kinds of Cacti growing in their native country under exactly similar circumstances should not thrive equally well with us. Professor Porter and Mr. Coulter, in their "Synopsis of the Flora of Colorado," mention the following kinds of Cactaceæ, viz., *Echinocactus Simpsoni* (figured in THE GARDEN last week), *Mammillaria Nuttalli* var. *caespitosa*, *M. vivipara* (this latter species grows freely over the plains and foothills east of the Rocky Mountains, round Colorado Springs, and has been, I believe, successfully cultivated in England); *Cereus viridiflorus*, yellow; *C. Fendleri*, flowers deep purple and fruit edible; *C. gonacanthus*, scarlet, open day and night; *C. phoeniceus*; *C. conoides*; *C. paucispinus*; *Opuntia Cananachia*; *O. arborescens*; *O. Rafinesquii*; and *O. missouriensis*, which Mr. Hemsley mentions as growing as far west as Wisconsin and Kentucky, spread over the plains of Kansas and Colorado to the Rocky Mountains, and their brilliant blossoms are among the most striking ornaments of that land of flowers. All the above have been described or verified by Dr. Engelmann, of St. Louis, but the Cactaceæ of Colorado had been by no means thoroughly worked out when Professor Porter's "Synopsis" was published three years ago, and I do not doubt that by this time many additional species have been added to the list which I have just given.

Bugleet.

ROSE G. KINGSLEY.

My experience of Cacti as hardy subjects has not been very favourable, but *Opuntia vulgaris*, *O. Rafinesquii*, and *O. missouriensis* I have found to be quite capable of thriving out-of-doors all the year round. I have seen *Echinocereus phoeniceus*, and *E. viridiflorus* also stand the winter outside at Ghent; all the *Echinocereuses* are nearly hardy, and so are *Mammillaria decipiens* and *M. retula*; most of the *Echinopsis* are almost hardy. I have often exposed *E. Eyriesii*, *E. Zuccariniana*, and *E. multiplex*, but they die, although they grow first-rate in the open ground in summer. Kept dry under glass this winter I have kept, without any fire-heat, *Echinocactus*, *Echinopsis*, and *Mammillarias*; but *Opuntias* and *Cereus*, with the exception of those just mentioned, do not succeed in a temperature below 54°. The valley of the Thames is not favourable for testing not only the hardiness of Cacti but also that of other plants, for I find that many Alpine plants that winter well out-of-doors at Reigate die here. On sandy soils in the south and west I have no doubt many Cacti would thrive out-of-doors, and, as they can be got for a trifle, I should advise cultivators so situated to try them. It is the moisture, and not the cold, which kills them, and I have lost quantities of the hardy *Sempervivum* this winter from the same cause; they die off, although on walls and rockwork they are quite hardy.—J. CROUCHER.

— Allow me to bear witness to the extreme hardiness of *Cereus phoeniceus* and *C. viridiflorus*; also to that of *Opuntia humilis* and *brachyantha*. I have seen *O. Engelmanni* at Vienna, where it is said to be hardy, but I cannot speak from my own experience in that respect. It is your wet English climate, not the frost, which kills these singular plants, which are, nevertheless, well worth a trial on sunny rockwork.—MAX LEICHLIN, *Baden-Baden.*

NOTES OF THE WEEK.

CLIANTHUS CARNEUS.—Of this interesting and beautiful conservatory climber we have a plant trained up a pillar, now in full bloom, and it is greatly admired on account of the showy colour and singular form of its flowers. They are produced in drooping clusters, each blossom resembling a parrot's beak in form, and pale red in colour. This *Clianthus* grows freely in common garden soil; but it must be frequently syringed, as it is very liable to the attacks of red spider.—A NORTHERN GARDENER.

HYBRID AND SEEDLING NARCISSI.—Several large beds of new seedling Daffodils and other Narcissi are now very effective in Messrs. Barr & Sagden's bulb grounds at Tooting. Among them are some singularly interesting forms. They appear to be seedlings and hybrids between *N. poeticus*, *N. incomparabilis*, *N. Pseudo-Narcissus*, and *N. montanus*, and among them are intermediates which completely break down all the existing systems of classification proposed by different authors in grouping these useful early-flowering plants.—B.

GLOXINIAS AT CHELSEA.—The Gloxinia-house at Chelsea is just now well worth inspection, containing, as it does, hundreds of plants in the most healthy condition, laden with large and magnificently-coloured blossoms. Among them may be found many new seedling varieties, the flowers of which measure from 3 in. to 4 in. across, and possess most beautiful shades of colour. The plants themselves are mostly grown in 6-in. pots, which are completely hidden by healthy green leaves of unusually large size. A house from 50 ft. to 60 ft. in length full of such plants as these, each bearing from thirty to fifty flowers and buds, is indeed a sight worth seeing.—S.

CYMBIDIUM EBURNEUM.—A fine plant of this well-known but somewhat rare Orchid is now flowering freely in Lord Loudesborough's collection at Norbiton. It is furnished with from fifteen to twenty buds and flowers, the latter being of large size and of ivory whiteness. Few flowers are more chaste or beautiful than these, a circumstance which makes the comparative scarcity of the plant all the more to be regretted. Associated with it is the smaller-flowered but beautifully-marked *Cymbidium Dayanum*, which is also in bloom. W.

MIGNONETTE FOR MARKET.—Where the large quantities of Mignonette, both in pots and in a cut state, now to be seen in Covent Garden come from is no mystery after one pays a visit to Mr. Reeves' and Mr. Pliuley's nurseries at Acton. In the latter place, Mignonette is grown chiefly for cutting and a few bunches of good heads often realize at this time of the year almost as much as a van-load of plants in pots. For this purpose the plants are grown in 7-in. pots, placed closely together in frames, and allowed to grow at will, receiving abundance of air, light, and water. For spring blooming the seed is sown in autumn, and for the summer supply, in spring. Mr. Reeves grows his Mignonette chiefly in pots; he has at the present time long ranges of cold pits entirely occupied by it—in all 1750 dozen 6-in. pots filled with Mignonette for market.—S.

ALLIUM NEAPOLITANUM.—The flowers of this are now being imported in large quantities to Covent Garden Market from the shores of the Mediterranean. Unlike other *Alliums*, this one possesses no unpleasant odour, and its flowers are pure white, and produced in trusses like those of a small *Narcissus*, which they resemble. They are of great value for bouquet-making and for other decorative purposes. In England this plant rarely flowers before May or June, but if strong roots of it were divided in autumn, potted in good soil, and placed under glass, where they could be gradually brought forward, there is no reason why good flowering plants of it should not be obtained in March and April, or even earlier, for conservatory or greenhouse decoration, a purpose for which they would be found useful as well as for supplying cut blooms.—C.

BERBERIS DARWINI.—Mr. Hobday has done good service in calling attention (see p. 282) to this beautiful hardy, early-flowering shrub. I have not seen it growing against a wall, but we have several plants of it in the form of bushes, and at present they are objects of general admiration, each branch being thickly furnished with small golden flowers. Four or five weeks have elapsed since we began cutting flowers from one large bush of this Berberry, and it will not be out of bloom for another month yet; a long succession of flowers can therefore be had from one plant. Wherever two varieties of hardy-flowering shrubs are planted, this should certainly be one of them.—A NORTHERN GARDENER.

ANTHURUM SCHERZERIANUM FOR MARKET.—Considering the ease with which this plant may be cultivated, and the rapid manner in which it is capable of being propagated, it is surprising that it has not before now become a favourite with florists who grow plants for market. In the Pine-apple nursery there are several hundred large

plants of it which have been flowering freely all through the winter, and which are now and will be for months to come masses of waxy, scarlet blossoms. Few flowers are more effective when used in large bouquets or vases than those of *Anthurium*, and certainly there are none that will last in good condition in a cut state so long, and as they are produced by strong plants at nearly every season of the year, growers for market might do well to turn their attention in that direction.—C. S.

LACHENALIAS AS BASKET PLANTS.—We have just seen some large semi-circular baskets filled with *L. tricolor*, which, used in this way, is remarkably effective. These were grown by Mr. Ollerhead, Wimbledon House, and form masses of glossy leaves and orange-red spikes, nearly 18 in. in diameter. Grown in this way these beautiful greenhouse bulbs are highly deserving of careful culture.—B.

DENDROCHILUM GLUMACEUM.—For several weeks past I have had a plant of this Orchid in bloom; it is furnished with some sixty long pendent spikes of small white, thickly-set blossoms, which load the air with sweet Hawthorn-like perfume. Though not attractive as regards colour, this Orchid has, nevertheless, a graceful and pleasing appearance, and deserves to be more frequently met with in private collections than it is.—H. C.

TILLANDSIA LINDENI.—This plant is now flowering freely in Messrs. Veitch's nursery at Chelsea. Its flower-spikes are from 15 in. to 18 in. in length, and each of them bears from three to five fully expanded, rich blue blossoms, which are large in size and remarkably effective. Plants like this, which continue to open their flowers for weeks in succession, deserve more attention than they receive.—W.

DENDROBIUM BONALLI.—Several plants of this Dendrobe may now be seen in flower in Messrs. Rollisson's nursery at Tooting; on a stem of one of them there are thirty-five large blossoms, the golden-yellow throats and delicate violet-tinted petals of which are strikingly effective.—S.

WISTARIA SINENSIS AS AN INDOOR CLIMBER.—It is not often that one sees this plant growing indoors; nevertheless it is worthy of a place there, if a great variety of climbers be grown. We have a plant of it at present in full bloom on the roof of the conservatory, where its great clusters of pale blue flowers are very attractive, and they are also useful in a cut state. It will grow in any kind of soil, is not subject to insects, bears any amount of cutting without injury, and does not produce a mass of foliage to shade other plants underneath it.—A NORTHERN GARDENER.

STATICE HOLFORDI FOR MARKET.—Mr. Henry Bailey, Feltham, cultivates this plant largely for market purposes. It is grown in 6-in. and 8-in. pots, which are completely hidden by large healthy green leaves; the flowers, which are freely produced, are of a bright blue colour, and admirably adapted for bouquet-making. As a conservatory plant in small pots this *Statice* deserves more attention than it at present receives in private establishments.—S.

ORCHIDS IN CONSERVATORIES.—Much of the beauty of many Orchids when in flower is lost by their being kept in the warm, moist atmosphere in which they are usually grown, whereas, if removed to a cool conservatory they would be quite at home, and would last double or treble the time that they would in a warmer temperature. In the conservatory at the Pine-apple Nursery may now be found well-flowered plants of *Dendrobium Wardianum*, *D. nobile*, *D. thyrsiflorum*, *Odontoglossum Alexandræ*, and *O. Cervantesi*, all of which have been in bloom for many weeks past, and will in all probability continue in that condition for some time yet to come. The colours of the flowers, too, are much brighter when subjected to a cool, airy temperature than when kept in a hot, close one, and they are, moreover, much more interesting when associated with ornamental plants of other kinds than when seen in a house by themselves.—C.

ROYAL HORTICULTURAL SOCIETY.—We are authorized to state that the Queen has intimated her intention to visit the exhibition of choice flowers to be held in the conservatory at South Kensington, on Wednesday, May 2, and that the flower show which was to have been held on the 1st will take place on that day.

SHOW OF COVENT GARDEN PRODUCE.—We are reminded that the exhibition of fruit and vegetables to be contributed by the growers and salesmen belonging to Covent Garden Market promises to be a most successful one. It is to be held on the 18th inst. at South Kensington, as already announced. Gold, silver, and bronze medals, with certificates of commendation, are to be awarded by the Society to the most meritorious groups of plants, window decorations, table decorations, bouquets, Fern-cases, fruits, vegetables, and salads. We would suggest that salesmen should exhibit collections of the important produce now so largely brought to the market.

TREE CARNATIONS FOR WINTER.

ALTHOUGH these may be had in bloom the whole year round, the winter months are those for which special provision should be made by striking annually successional batches of pipings from plants that have bloomed the previous winter; for young plants are more floriferous than old ones, and when required for purposes of decoration small pots are absolutely necessary. We usually put in two or three batches of cuttings in succession during March and April. They are prepared in the same way as ordinary Pink pipings, are inserted thickly in well-drained pans, and are treated the same as other occupants of the propagating pit. Under such circumstances they root rapidly, after which they are transferred to a warm house or pit, and gradually inured to more light and air, preparatory to being potted off into 3-in. pots, the strongest singly, and the weakest two or three in a pot. The compost which we find suits them best is a moderately light turfy loam, free from wireworm, dry cow or sheep manure, and sharp grit or sand. They like a warm frame or pit until they have become well rooted, when they may be gradually hardened off in a cold frame by drawing the lights entirely off on fine days, and replacing them at night or during heavy rains. Before the roots get too much matted together, say in June or July, we shift them into their flowering pots, 6-in. or 7-in. pots being the size used for the strongest plants, and 4-in. or 5-in. ones for successional plants, using a compost similar to that above described, but in a rougher state. Plenty of drainage is of the utmost importance, and a sprinkling of soot over the potsherds acts both as a manure and a check to the inroads of worms. A good open position during summer on a bed of coal ashes suits them admirably, great care being taken to see that they do not suffer from lack or excess of root moisture. They should not be stopped but tied loosely to neat stakes as growth progresses. By the beginning of September those that were potted earliest will be coming into bloom, and they should be introduced to a light, airy house or pit, in which a temperature of about 55° can be maintained during the winter. Here they will produce blossoms in profusion, and for button-hole or other bouquets, or for intermixing with general floral decorations they are unsurpassed by those of even the choicest stove plants. Their colours range from the purest white to the brightest crimson, and amongst the intermediate shades may be found the softest and most delicate tints imaginable. They last, too, for a considerable length of time in a cut state, which is more than can be said of many flowers that are forced into bloom at the same period of the year. Green fly is sometimes troublesome, but fumigation or dipping soon clears them of it. The flower-pods of some varieties are apt to burst; such kinds should have a neat tie put round the flower before it is fully expanded. As soon as the blooms of Pinks become plentiful in spring and a stock of cuttings of these Carnations has been secured, the old plants may be thrown away or planted out in a spare border, where they will probably yield a few fine blooms late in the summer and autumn months. J. GROOM.

Henham.

Summer Treatment of Cyclamens.—Now that Cyclamens have for the most part ceased blooming, they should be placed in cold frames, where they can be partially shaded from sunshine during very hot weather. If the pots be set on ashes they will serve to keep them cool and moist, and occasional fumigation in order to keep them free from green fly and red spider must be resorted to. Abundance of air and moisture should be maintained about the plants, but too much water must not be given to the roots. Young bulbs of Cyclamens just raised from seed should be kept in a light moist and somewhat close atmosphere, protecting them from the fierceness of the sun by means of tiffany or mats, or if they can be placed in a naturally-shaded house or pit so much the better. Shift them on into larger pots as the roots touch the sides of those which they now occupy, until they are in 5-in. pots, which will be found large enough for the first year. Good sandy loam and a little leaf-mould or thoroughly decayed manure, constitute the best compost in which to pot them, and no manure-water should be given, pure and soft rain-water being more likely to induce satisfactory results. Bulbs of Cyclamens raised from seed sown in February, will make good flowering plants by Christmas or soon after if properly attended to.—S.

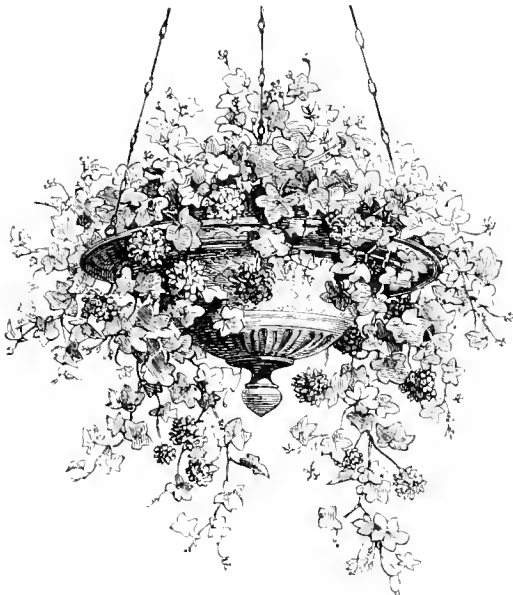
MAGNOLIA CITRIDORA.—A large tree of this *Magnolia*, growing in the Pine-apple Nursery, is now bearing nearly 3000 buds and blossoms; the latter differ from those of *M. conspicua* in being delicately streaked with purple as well as in other respects. They are also deliciously fragrant.—S

THE INDOOR GARDEN.

A USEFUL BASKET PLANT.

(*PELARGONIUM HEDEREFOLIUM* VAR. *KÖNIG ALBERT*).

NEARLY all the ordinary varieties of Ivy-leaved Pelargoniums are well adapted for hanging-baskets or brackets, but none surpasses in graceful beauty the new variety called König Albert, which, while fully as elegant in its growth as its congeners, has the additional merit of producing double blossoms, and these, like most other double flowers, last longer in beauty than the single-flowered types. The annexed engraving gives a good idea of the graceful contour of this Ivy-leaved Pelargonium as a basket plant when employed alone for that purpose, but it might also be grouped along with the scented-leaved varieties which are used with such excellent effect in the large hanging-baskets at the Crystal Palace, or even for fringing the margins of large baskets in which Dracaenas, Ferns, and other effective fine-foliaged plants are used. Pelargonium König Albert, which was figured and described in *THE GARDEN*, Vol. VIII. (1875), p. 81, bears clusters of double



Basket of Pelargonium König Albert.

pink flowers streaked with crimson. It was, we believe, the first double-flowered variety which occurred in the section to which it belongs. It was raised by M. Otto Leibmann, a Continental grower, and was imported and distributed by Mr. W. Bull. B.

HOW A COOL CONSERVATORY MAY BE KEPT GAY DURING WINTER.

It may interest some of your readers to know what may be done in the way of conservatory decoration during winter with little or no heat, and without the aid of a professional gardener. I have a small conservatory—13 ft. by 9 ft.—into which glass doors open from both drawing and dining rooms, and it is my ambition to keep it as gay and bright as possible at all times, but more especially during the dull, dark winter months. To supply this with plants in bloom I have another greenhouse or rather Vinery, 18 ft. by 10 ft., in which there is only a stove used merely to keep out frost. Here there is a small plant case heated with hot water by means of a common lamp, in which in early spring I raise seeds and cuttings. These, with a cold frame made of a couple of "curate's Vineries" slightly raised from the ground, are all the appliances at present within my reach. I am quite satisfied, however, from the experience of the last three winters during which the little conservatory has existed, that much more may be accomplished without heat

than is generally supposed. This has certainly been an exceptional winter: the stove in the Vinery has not once been lighted, and has to-day (April 14) been removed to its summer quarters. In consequence, no doubt of the mildness of the season, my plants have been more than usually successful with less trouble than in ordinary winters; but the care generally needed is more than compensated for by the pleasure of looking out of our sitting rooms at bright flowers and Ferns when out-of-doors all is dead and dreary. It is necessary, however, for the preservation of many of the plants which I grow, that some protection should be afforded in the bitter frosty weather, of which we here (in an Alpine climate, over 700 ft. above the sea-level) have generally our full share. Some thick, red curtains have done good service for this purpose. These our kitchen gardener (who is a valuable aid, though I keep the management of my flowers in my own hand) puts up every evening when the shutters are closed, and takes them down in the morning. These, with a few yards of frigidome, which he throws entirely over the stands at night, effectually keep out the frost. One is sometimes amused by the flowers being thus put to bed and tucked up, but it answers the purpose admirably, and ten minutes suffice for the performance of the operation. It is probable that an outside covering of frigidome might answer even better, and might be as easily arranged as is a sun-blind. This winter neither curtains nor frigidome have once been necessary, but many winters may pass before we have again so mild a season. Owing to absence from home and other unavoidable causes last year, the little house was not so gay as usual just at Christmas, but the year began with Roman Hyacinths and Narcissi, *Coronilla glauca*, both kinds of *Triteleia* (which are invaluable), and *Scilla bifolia* and *sibirica*. A few common Primroses dug up from the woods, potted, and arranged to peep through the hardy Ferns (of which I grow a good many), were also very effective. By the beginning of February I was able to add to these some lovely red Cyclamens and Primulas, with Mignonne and Czar Violets. The Primulas were backward, owing to the seed being unavoidably sown very late; for experience has taught me that to be successful with these in a cold-house it is necessary to have strong plants early in the autumn, when it is quite possible to have them in full beauty at Christmas. All through March, besides those already mentioned, there has been a succession of Narcissi, Hyacinths, dwarf Tulips, Neapolitan Violets, and Lachenalias. Several hardy plants have also been pressed into the service, such as *Iberis gibraltarica*, *Orobis vernus*, *Omphalodes verna*, *Polyanthus*, and *Primula denticulata*; of these, the three first-named are not so generally appreciated as they should be, and all are valuable. *Sparmannia africana* is an old-fashioned shrub, which has done very well here this winter, and *Oxalis cernua* is another bright little plant for a sunny corner. *Tropeolum Jarratti* will be a mass of flower in a day or two, and is as vigorous and healthy as possible, though grown entirely in a window. A small variegated Ivy has been charming amongst the green of the various Ferns; and some small *Laurustinus* bushes, which I had potted after reading the note about them in *THE GARDEN* some months ago, have been all that could be desired. I am aware that all the plants which I have named are quite common, and to be found in every warm greenhouse; not so, however, where the heating apparatus is comparatively ineffective or altogether wanting. It takes, on an average, 100 pots of Ferns and flowers to fill the little conservatory of which I have been speaking, and as I do not care to have dozens of one kind of plant, it taxes my powers considerably to keep it gay all the year round. I therefore glean with the greatest interest from all the notes which I find in the pages of *THE GARDEN* not only on half-hardy greenhouse, but herbaceous border plants. For this reason I venture to hope that my experience in blooming flowers with very little heat may prove of some use in helping others to make the most of the means within their reach.

Ashmore.

K. L. D.

Salvia Gesneræfolia.—Amongst plants that flower naturally at this season, few are more brilliant than this *Salvia*, which is rendered all the more conspicuous on account of white and yellow flowers being so abundant in early spring. It is a plant which is

most accommodating as to soil, and does not require heat after the cuttings are rooted. We usually propagate it in May and gradually harden the young plants off in a cold frame, shifting them according to the size of specimens required. We winter them in a cool Vinery, and at this season every shoot is crowned with brilliant blossoms. *Salvias* are undisturbed by insect pests, and if attended to properly with water and other little details of culture, few plants are more easily managed.—J. Groom, *Hemlan.*

GLOXINIAS AND THEIR CULTURE.

THE present race of these beautiful Gesnerads owe their parentage to a few species imported from different parts of S. America; the hybrids of the present day, however, are superior to the species in every quality, in size, form, and the almost unlimited variety of colour, from the purest white, through the different shades of pink to deep red, and from pale blue to intense purple, with endless forms of spotting and banding with light and dark colours; in fact, there are few flowers that can boast so much variety: in addition to which they have many other points to recommend them. They are very easy to increase, either from seed or by cuttings; they are also easily grown, and most useful for decorating the stove or intermediate-house in the summer season, continuing to bloom more or less for a considerable period; while the flowers are very useful for cutting, and if placed in water they will last for several days, provided the plants have made their growth and produced their blooms in a thoroughly light situation, with the requisite amount of air to impart a sufficient substance to them, the latter an indispensable condition when they are required to be used in a cut state. The ability that the flowers of most stove plants possess to enable them to keep well when cut for vases, &c., generally depends materially upon the way the plants have been previously managed, but there are few so much dependent in this respect as are *Gloxinias*, as the whole character of the plant is so much changed for better or worse, according to the conditions of cultivation. When well grown the leaves are stout and short, borne on stout foot-stalks, with the flowers standing up well above the foliage; whereas, if grown either too moist or too hot, with insufficient light, the whole plant has a soft, flabby, straggling appearance that effectually destroys its beauty and shortens the duration of its blooming. By using a sufficient number of plants, and bringing them on at different times, a succession of flowers may be kept up from April until the end of September.

In raising *Gloxinias* from seed, it should be sown early in the spring, so as to allow the plants an opportunity of attaining a sufficient size, in order that they may flower during the summer in a way that will exhibit their true character: if sown about the middle of March, they will have the requisite time. The seed should be sown in an ordinary pan with 1 in. of drainage at the bottom, on which place a little *Sphagnum*; the soil should consist of equal parts of loam, peat, and leaf-soil, all sifted; add to the whole one-sixth its bulk of sand, it being essential to have the material of a loose open nature, or the roots of the young seedlings will be injured in transplanting them; fill the pan with the soil to within $\frac{1}{2}$ in. of the rim, pressing it down moderately firm, then water with a fine rose, so as to close up the surface, and on this sow the seeds, not too closely, or they will become crowded and consequently drawn up before they are large enough to pot off; cover very lightly, and place in a temperature of 65° . As soon as the young plants appear, elevate them close up to the light, screen from the midday sun, and supply them with water, giving a little air during the day. When the leaves are 1 in. long, move singly into 3-in. pots, using soil similar to that in which the seeds were sown, and at once replace them near the light, raising the temperature as the days increase in length. By the end of June they will require shifting into 4-in. pots, using the soil without sifting, and should receive the treatment previously recommended. The best kinds should be marked for propagation and the inferior ones discarded. When the flowering is over, give them less water, discontinue shading, and admit more air, so as to ripen the growth. When the leaves have died down, the soil must be allowed to become quite dry, and be kept for the winter in a temperature of 50° —cooler than this is not safe for any length of time. They

generally winter the best when the bulbs are allowed to remain in the soil and pots in which they have been grown; but as they become large and are in pots of a considerable size, this is not always convenient, in which case they should be stored in paper bags filled with dry sand to preserve them from the air, otherwise they shrivel, and thereby receive serious injury.

To give a succession of flowers through the summer a portion of the plants may be started about the middle of February, and a further supply in March; let the pots be proportionate to the size of the tubers—7 in. in diameter will be large enough for the second season. In potting just leave the crowns of the tubers on a level with the surface of the soil, and immediately they are potted place them in a temperature of 60° at night, and 5° or 10° warmer by day; if not, put in heat as soon as potted, the roots will rot; the soil ought to be in a slightly moist state when used, and little water should be given until growth has commenced. Treat them throughout the season as recommended for the preceding summer as to heat, shade, air, light, and moisture. As already pointed out, their satisfactory flowering will depend upon their receiving abundance of light; a shelf over a path within a few inches of the roof is the best place for them, for in such a situation not only do they get the requisite amount of light, but they also receive more air, both and being so essential to short sturdy growth. This summer they will bloom well, and increase considerably in the size of their roots, yet it is in the third and fourth years after sowing that they will make the finest display.

When the bulbs get large they may be divided, retaining to each portion some of the buds with which the crown is furnished; but the most general method of propagation, and by far the most expeditious, is by leaf-cuttings. If the leaves be taken off in the summer when fully matured with a portion of the leaf-stalks, and this portion inserted in 5-in. pots, drained and filled with half peat, or loam and sand, with $\frac{1}{2}$ in. of sand on the top, and kept in a brisk heat, slightly shaded, and the soil moist, they will form healthy bulbs before autumn; or, if the variety that is to be increased be scarce, several may be produced from single leaves by cutting through the midrib on the under side in four or five places, and laying the leaves flat down on the soil in pots or pans, prepared as above, but sufficiently wide to admit of their being so placed; over each place, where the midrib has been severed, secure the cut parts on the soil with a pebble about the size of a cockle, at which points bulbs will be formed, which, when the top has decayed in the autumn will require to be wintered, and afterwards grown on in every way as recommended for the plants raised from seed.

The following named varieties are all well worth growing:—

ERECT-FLOWERING KINDS.—*Alfred de Musset.*—Bright red striped with lilac. *Duke of Edinburgh.*—Tube white; throat deep violet shaded with maroon. *Panthère.*—Blue spotted with white: throat white and massive. *Scarlet Gem.*—White tube; throat spotted with lilac; limb deep scarlet. *James Brand.*—Throat creamy-yellow spotted with violet; lobes violet. *Don Luis of Portugal.*—White tube; throat spotted with carmine with a zone of violet; white limb. *Magenta Queen.*—Tube deep red; base of limb deep crimson edged with magenta. *Mr. Thomas Binney.*—Red throat; limb crimson. *The Czar.*—Tube white; limb purplish-violet. *A. Haut.*—Blue spotted on a white zone. *Byron.*—White, amaranth lobes. *Chateaubriand.*—White lobes; throat delicate rose.

PENDENT VARIETIES.—*Alice.*—Limb mauve; throat yellow. *Angeline.*—Tube rose barred with white. *Mogul.*—Tube spotted with red; crimson-purple limb. *M. Alphant.*—White tube; violet-spotted throat; purple limb. *Eblouissant.*—Bright red; throat white. *Delicata.*—Outside of tube white; inside violet; base of lobes rose margined with white. *Grand Monarch.*—Tube white; throat violet spotted with white; limb deep crimson. *Ne Plus Ultra.*—White with crimson throat spotted with carmine. *Bird of Paradise.*—Lilac; throat white spotted. *M. Grivet.*—Throat spotted with maroon, bordered with violet; mouth spotted with violet. *Mrs. William Bull.*—Red flaked with white. *Washington.*—Deep vermilion. *Wilhelmine.*—White, mouth banded with blue; throat spotted with rose.

INSECTS.—Gloxinias are not usually much troubled with insects. Thrips will sometimes attack the leaves, in which case sponging and fumigation are the best remedies. If aphides make their appearance on the young flower-stalks, they can best be destroyed by fumigation.

T. BAINES.

ACANTHUS LATIFOLIUS AS A WINDOW PLANT.

In the window of the bureau of the restaurant at No. 71, Avenue des Champs Elysées, Paris, I have throughout the winter and spring admired the beauty of a specimen of this plant. I enclose a sketch which gives a slight notion of its aspect, but nothing could do justice to its superb health and the deep, untiring gloss of its fine leaves. THE GARDEN has lately figured a specimen of the same plant as it grows in the open air. It is the most valuable of large-leaved room plants, and far more precious for general purposes than the long popular *Ficus elastica*, because it is quite hardy and very easy of culture.



Acanthus latifolius in window in Paris.

Therefore it will be found perfectly at home in cool rooms, halls, passages, &c., where little artificial heat is applied. The plant figured grows in a wooden box in the window. V.

PROPAGATING ALTERNANTHERAS.

WHERE *Alternantheras* are used in large quantities (and if they are to be used effectively a considerable number must be provided) then economical propagation becomes in many places a matter of some importance. I have tried various schemes with the view of saving labour and economising space, and at the same time have the plants in good condition and colour when first put out, and this latter condition can only be secured by growing them in some house or pit in the full light and warmth of the sun. They will grow in boxes under the shade of Vines or other plants, but they will not colour well unless exposed to strong light, and when green or badly-coloured plants are used in the first instance, half the season is wasted before they become really effective. I believe the best and quickest way of producing this class of plants in large quantities is to make up a special hotbed for them about the end of March or beginning of April. The pit, if a pit be used, should be filled up within 6 in. of the glass with leaves and manure or any other materials that will produce a steady bottom-heat of 80° or 85°, and that will last for three weeks or so at that point, and at this season this will be a very easy matter. When the heat has become regular and steady—which can easily be ascertained by placing a trial stick in the bed a foot or so deep, and examining it occasionally—about 4 in. or 5 in. of light, rich, sandy soil should be placed all over the surface, adding at the same time a sprinkling of silver sand on the top, and pressing it down moderately firm with a flat board. The cuttings may now be prepared and dibbled in 1 in. apart each way, and if kept close, moist, and shaded from bright sunshine, in a few days they will be forming roots, and as soon as that takes place, the shading should be discontinued and the ventilation gradually increased until they are finally hardened off and planted out. If carefully lifted and placed in trays or baskets with a *Rhubarb* leaf over them, they may be taken any distance and planted without flagging, and

with this advantage, that the plants being in good colour the beds are effective at once. We find April early enough for striking them, as it is not safe to plant them out here, even when thoroughly hardened, before June 10. *Iresines* and *Coleus* may be treated in exactly the same manner, only as the cuttings are larger, they should be allowed a little more space, and much better, dwarfier, sturdier, and better coloured plants are produced with a tenth part of the labour and trouble that growing them in small pots involves; and afterwards, with a little freshening up and renewing of the heating materials, I find the same pits come in very useful for late Melons.

E. HOBDAY.

Ramsay Abbey.

CULTURE OF COCKSCOMBS.

AMONG tender annuals grown for the decoration of greenhouses or conservatories, or even for sitting-room windows during July and August, none are more popular than the Cockscomb. It is generally considered difficult to manage, and it does require a little ingenuity to produce the fine combs which one occasionally sees on exhibition tables; but for ordinary purposes the treatment is simple enough. In order to secure fine healthy specimens, good seeds must be obtained. If it be two or three years old all the better, as in that case the plants have not such a tendency to produce coarse foliage, and the combs come finer. The seeds should be sown in March or April in well-drained pots filled with rich soil to within an inch of their rims; scatter the seeds evenly and thinly, and cover lightly with a little sand and fine soil. They will germinate best in a frame set on fermenting material in a temperature of 65° by night and 75° by day. As soon as the plants appear, they should be kept as near the glass as possible, to prevent them from being drawn, and as soon as they are ready to handle they should be potted singly, in pots 2½ in. or 3 in. in diameter. In potting, place them in the soil up to the seed leaves, and in order to preserve the roots from injury they should be carefully lifted. If it be not convenient to prick the plants off into small pots singly, they may be pricked off into pans or boxes 1½ in. apart, but whether they are in small pots, or in pans, they should be encouraged to grow as fast as possible, and not have too much water; for keeping them dry rather than wet will induce to them to produce combs; and as soon as those that are well shaped can be selected, the plants should be potted into 4-in. or 5-in. pots, giving them a little water a few hours previously. The best compost for Cockscombs is a rich loam, rather inclined to be light, pulled to pieces with the hand, not sifted; to three-fourths of loam add one-fourth of well-rotted cow-manure, or the same quantity of rotten botbed manure, and a good sprinkling of sharp sand, mixing the whole well together. In potting, the soil should be pressed rather firmly about the roots, but not so as to make the ball too solid, otherwise the water will pass freely away; and if it be too open, the danger is that the plants will run to much leaf. After potting they must be kept as near the glass as possible, and if they be plunged up to the rim in a hotbed, it would be the best position that could be afforded them. The final shift should be into 6-in. or 7-in. pots, according to the health and strength of the plants. If they be merely required for decorative purposes, the former will answer perfectly, but if required for exhibition they should have 7 in. or 8 in. pots. At the last potting good drainage must be secured, and the shifts must be given before the combs are too much developed. Under this treatment good combs will be produced, and the plants will be sure to be dwarf, and nearly uniform in size, a point of importance when they are required for exhibition.—R.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Double Chinese Primulas.—The plant of Marchioness of Exeter, shown at South Kensington on the 21st ult., was probably one of the finest of that strain of *Primulas* ever seen. Mr. Gilbert, who has several others nearly if not quite as good, asserts that he attributes their fine growth to using charcoal largely in the compost in which they are grown. Not only does this furnish good and necessary drainage, but it also affords valuable root food, and it is evident that the Chinese *Primula* has a special fondness for it. Those who are accustomed to grow old plants of the Chinese *Primula* are well aware of the extreme difficulty experienced in getting them safely through the winter on account of their tendency to damp off. Evidently Mr. Gilbert finds in the free use of charcoal a remedy for this defect.—A. D.

Fuchsias in Baskets.—Now is a good time to put young plants of *Fuchsias* into baskets, in order to obtain a good display late in summer and throughout the autumn. Varieties of slender habit are best adapted for the purpose, and if the shoots be kept persistently stopped, the plants will form dense bushes, which will cover the bottoms and sides of the baskets, and, when suspended from the roof of a greenhouse or conservatory laden with bloom, will form striking objects. The flowers, indeed, are shown off to greater advantage in this way than when the plants are grown in pots and trained in a pyramidal section. Good rich loam, plenty of water, and timely attention to stopping the shoots so as to obtain a dense pendulous habit at first, are all the plants require to bring them to a high state of perfection.—S.

THE LIBRARY.

THE MINIATURE FRUIT GARDEN.*

WHEN a book on fruit culture or indeed on any other branch of gardening industry has reached an eighteenth edition, little need be said as to the value or otherwise of its contents; nevertheless, the advent of the present edition is worth noting as a sign of the increasing interest that is being taken in one of the most important of all the branches of economic gardening, and one, moreover, which ought to be as great a source of wealth to ourselves as it undoubtedly is to our French, Belgian, and American neighbours. Apart from the question of soils, aspects, different methods of fruit-tree protection, and other kindred subjects, this little volume contains a good deal of useful information on the different stocks best suited to the requirements of different varieties of hardy fruits, and the remarks on "double grafting" are alike instructive and interesting. The lists of fruits for the different modes of culture are not overburdened with varieties, only the best and most profitable being named; and, as these selections are made with reference to keeping up a succession of fruits for dessert or culinary uses, they will be of great value to amateurs and others who may from time to time refer to them. Records of modern improvements in fruit culture, not elsewhere obtainable in so convenient a form, are also given. While upon the whole the work is perfectly trustworthy, we must not fail to point out one of a few inaccuracies into which Mr. Francis Rivers—the editor of the present edition—has been led by Mr. Bartley's paper read before the Society of Arts a short time ago. For example, at page 14 of the introduction we find it stated that we have only 40,000 acres of land in this country used as market gardens. Now these figures apply to land devoted to the culture of vegetables for market only, the total acreage of fruit grounds or orchards (apart from nurseries) being about 157,000 acres in addition. We are the more particular in pointing out this mistake, as extracts from the paper referred to have gone the round of the press without correction, although we explained how the error had arisen when the paper was read. The following extracts will show the kind of information which this little book contains as regards the improvement of hardy fruit trees and other matters relating to them.

Apples as Bushes on the Paradise Stock.

There are some varieties of Apples that do not form, even with care, well-shaped pyramids; such sorts may be cultivated as bushes when grafted on the Paradise stock, and are then excellently well adapted for small gardens. I have, indeed, reason to think that a great change may be brought about in suburban fruit culture by these bush trees. I have shown elsewhere how bush Pears on Quince stocks may be cultivated. Pears are, however, a luxury; Apples and Plums are necessities for the families of countless thousands living near London. Apple bushes, always very pretty and productive trees, may be planted 1 ft. apart row from row, and 4 ft. apart in the rows. If two or three years old when planted, they will begin to bear even the first season after planting. They should be kept from the attacks of the green aphid in summer by dressing the young shoots with Quassia mixture, and from the woolly aphid by Gishurst Compound. The principal feature in this culture is summer pinching, which must regularly be attended to, from early in June till the end of August; this is done by pinching or cutting off the end of every shoot as soon as it has made five or six leaves, leaving from three to four full-sized ones. Some varieties of the Apple have their leaves very thickly placed on the shoots; with them it is better not to count the leaves, but to leave the shoots from 3½ in. to 4 in. in length. If the soil be rich, and the trees inclined to grow too vigorously, they may be removed biennially, as recommended for bush Pears, by digging a circular trench 1 ft. from the stem of the tree, and then introducing the spade under its roots, heaving it up so as to detach them all from the soil, and then filling in the earth dug from the trench and treading it gently on to the roots. There is no mode of Apple culture more interesting than bush culture. I planted 100 trees in the spring of 1862. They bore a fine crop in 1863 of most beautiful fruit, and in 1864 gave a crop almost too abundant.

* "The Miniature Fruit Garden," by Thos. Rivers. Lond. pub. Longmans, Green, & Co., 1877.

Apples as Bushes for Market Gardens.

In a well-ordered fruit garden every kind of fruit should have its department, and instead of seeing, as in Kent, a row of trees of all sorts, mixed in the most heterogeneous manner, no mixture should be allowed; every kind should have its allotment—Apples on the Paradise and the Crab stocks, Pears on the Quince stock, the same on the Pear stock, Morella Cherries as pyramids on the Mahaleb stock—the best of all methods for their culture—and the various kinds of the Duke Cherries on the same kind of stock. Heart and Bigarreau Cherries on the common Cherry stock, Plums as bushes, pyramids, or half-standards, should all be separated, and not planted higgledy-piggledy, as they have been and are now. The sound-headed market gardener will, when his mind is turned to improve fruit-tree culture, see all this and make his fruit garden a pattern of order. I have been led into these remarks on market garden fruit-tree culture by my own experience, and especially into a consideration of the great improvement that may be made in the culture of Apples on the English Paradise stock. My plantation of Cox's Orange Pippin Apple trees on this stock in the season of 1861—the third year of their growth in their present quarters, and the fourth of their age—gave an average of a quarter of a peck from each tree, so that we might have from 4840 trees, growing on 1 acre of ground, 302 bushels of fine Apples worth 5s. per bushel, or £75. In 1866, the trees then averaging half-a-peck each, would double this sum, and make an acre of Apple trees a very agreeable and eligible investment. The kinds likely to sell best in the market, and which are most productive, are the following:—Cox's Orange Pippin, Ribston Pippin, Sturmer Pippin, Scarlet Nonpareil, and Dutch Mignonne; these are dessert Apples. The following are valuable kitchen Apples, and abundant bearers:—Hawthornden, New Hawthornden, Stirling Castle, Cox's Pomona, Keswick Codlin, Dumelow's Seedling or Wellington, Lord Suffield, Norfolk Beater, and Duchess of Oldenburgh. Such large varieties as Bedfordshire Foundling, Blenheim Orange, and Warner's King, should have more space, be planted 4 ft. apart, and be thinned out by removal to 8 ft. apart, as recommended for Pear trees. The proper method of planting and managing these bush Apple trees, is exactly that recommended for bush Pear trees on Quince stocks. It may be, by some, made a question of expense, for although the return must be large and profitable, the purchase of nearly 5000 Apple trees would involve a large outlay. To this I reply—first, that stocks, costing only a small sum per 1000, may be planted and grafted where the trees are to grow permanently; and secondly, that a large demand which my method of planting would create, will also create a cheap supply. The preparation of an acre of ground should be as follows:—It should, previous to planting, be forked over to the depth of 20 in. (if very poor and exhausted, from 30 to 40 tons of manure may be forked in)—not more—as trees such as I have recommended, viz., Pears on the Quince stock, and Apples on the English Paradise stock do not root deeply—this ought to cost £12. The annual expenses are, forking the surface in spring £1 6s. 8d., and hoeing the ground, say four times during the summer, £1 1s. I give the amounts paid here for such work. Then comes the summer pinching of the shoots by a light-fingered, active youth, and this may, at a guess, be put down at £1, making the aggregate annual expenses, £3 10s. 8d., or say, £1 per acre. The large return will amply afford this outlay, even adding, as we ought to do, the interest on capital and rent. It will be seen that what I propose is in reality a nursery orchard, which may be made to furnish fruit and trees for a considerable number of years. To fully comprehend this we must suppose a rood of ground planted, as I have described, with 1210 bush Apple trees. In the course of eight or ten years half of these, or 605, may be removed to a fresh plantation, in which they may be planted 6 ft. apart; they will at once occupy half an acre of ground. At the end of sixteen or eighteen years every alternate row of trees in the first plantation—the rood—will require to be removed, which will give 302 trees to be planted, 6 ft. apart, leaving 303 in the original rood. The 1210 trees will by this time occupy 1 acre of ground at 6 ft. apart. With proper summer pruning or pinching they will not require any further change, but continue to grow and bear fruit as long as they are properly cultivated. The great advantage reaped by the planter is the constant productiveness of his trees; from the second year after planting they will be always paying their way. The unjudicious fruit cultivator will quickly find out the great advantage of my mode of Apple and Pear cultivation. Still, it may be thought too serious a business to attend to 3000 or 4000 trees per acre, and only adapted to a very humble cultivator; I ought, therefore, to state that those who wish to cultivate Apples and Pears for market purposes may with a sound prospect of success, if the soil and climate be favourable, plant Apples on the English Paradise stock, and Pears on the Quince stock, either as pyramids or bushes, 1 ft. and 6 ft. apart, row from row, the former distance for dwarf,

prolific sorts, the latter for robust growers. This distance will admit of light crops of vegetables for 2 ft. in the centre between each row for several years, and till the trees—which must be under summer pinching—cover the ground. In the usual old-fashioned mode, Standard Apple trees are planted in orchards at 20 ft. apart, or 108 trees to the acre; if the soil be good and the trees properly planted, and the planter a healthy, middle-aged man, he may hope, at the end of his threescore and ten, to see his trees commence to bear, and may die with the reflection that he has left a valuable orchard as a legacy to his children, but has not had much enjoyment of it during his life. Now, although, like most fathers, I have a strong wish to benefit my children, I hold the idea that one ought also to think of one's own gratifications. Since writing the above, my attention has been directed to a plantation here; its Apple trees are grafted on the English Paradise, they are 4 ft. apart, and are safe for twenty or thirty years if pinched and pruned as directed. Plantations made at 4 ft. apart may in the course of a few years be brought to a permanent distance for pyramidal trees, that of 12 ft. apart; the trees originally planted being removed to another plantation. They may be safely moved at two or even three years after planting, the removal being performed as early in October as practicable.

Experiments in Making

Vine Borders.—When shifting some of our Vines here from the old to the new gardens, I tried an experiment with three plants of the Black Tripoli of same age and size, by planting them in a confined border of 4 ft. in width and 3 ft. in depth. The roots had to be coiled in the border, and the compost used consisted of tree leaves, horse-droppings, and manure from a Mushroom-bed, mixed with lumps of charcoal. The roots of the Vines were quite confined to the border, which was paved in the bottom but well drained, and in the growing season its surface was top-dressed with guano. During the first year the Vines produced a few small bunches, but the flavour of the Grapes when ripe was quite nauseous compared with what they would have been had they resembled that fine vinous-flavoured variety when grown in a proper border. During the second year's growth the crop was a good one, both bunches and berries being of a fair size; but the latter did not colour well, and their flavour, although sweet, was quite devoid of the vinous aroma for which the variety is celebrated. After the second year's growth the Vines were grubbed up and the experiment ended, for it showed that the soil may be made too rich for the growth of the Vine, and that the flavour of the Grapes is affected by the food upon which the roots feed. Amateurs and others not acquainted with the proper soil for Vine borders should therefore eschew all rich nitrogenous composts, and rest satisfied with the soils usually recommended for the growth of the Vine. The greatest success in Grape-growing is attained by having well-drained borders, in managing the Vines properly during the growing season by giving the roots stimulants in the shape of liquid manure, and in keeping the foliage clean and healthy.—WILLIAM TILLERY, *Welbeck*.

DASYLIRION LONGIFOLIUM.

This species has flowered in the open air at Hyères, in the south of France, and the "Revue Horticole" gives a figure of it which we now publish. The leaves attain a length of 5 ft., and the flowers, which are white, are very numerous. It is one of the many fine plants which the climate of the south of France permits the amateur to enjoy among his Roses and Acacias.

LATE GRAPES AND HOW TO PRODUCE THEM.

We have yet a good deal to learn on the subject of keeping Grapes after they are ripe, and it is a matter that is every year becoming more urgent, considering to what an extent the market is supplied by late Grapes, which have usually been long kept before they come there. There is no doubt about good samples of Lady Downes, Black Alicante, or Gros Colman still fetching high and remunerative prices to the grower, but good samples are the exception. As a rule the berries are shrivelled and little better than raisins—inferior in appearance, in fact, to foreign Grapes. Here and there may be found well preserved examples in private gardens, but success in keeping Grapes after they are ripe is not constant even with the best cultivators, and it may be safely asserted that the majority fail to keep their Grapes in good condition for any length of time

after they are cut from the Vines, while not a few fail to preserve them in good condition when hanging upon them. Yet we know that we possess good keeping varieties, and we know under what conditions they do keep in some cases; and the question which naturally arises is, Where do we err in our culture that we should not be more generally successful in that respect? Hitherto, I am afraid, too much stress has been laid upon the mode of keeping the fruit, and too little thought given to its preparatory culture. Something must, perhaps, be allowed for the difference of soils; but it can hardly be doubted that, if our general culture in other respects were more alike, so also would be our success in preserving the fruit. It is a certain fact in Grape culture that as the fruit is grown and ripened so will it keep. Grapes that are grown quickly or in a high temperature keep worst. Black Hamburgs ripened before May commonly shrivel before midsummer; when ripened by midsummer they keep well on into autumn; and when they are ripened in autumn, after a leisurely summer growth, they will sometimes keep till the month of February. Some may perhaps attribute the shrivelling of spring-ripened Grapes to the dry summer weather; but the same thing happens



Dasyliirion longifolium in flower at Hyères.

with Grapes ripened at the new year, or in January or February, when they should keep best. Grapes ripened at these seasons keep worse than those ripened in May, for the following reason: Early-ripened Grapes are like globules of water compared with Grapes ripened in August or September. The latter are solid-fleshed and firm, and have some staying power about them; but the former have none—they are nothing but skin and water, and they shrivel up into raisins almost as soon as they are ripe. I am presuming, of course, in the case of Grapes ripened during the natural season, that they have not been forced under a high temperature, for such treatment has the same effect, only in a less degree, as early forcing. It has been asserted by not a few good cultivators that late Grapes—such as the Muscat of Alexandria—require a high temperature to ripen them perfectly; but this is doubtful. There is nothing more certain than that Lady Downes and Black Alicante Grapes ripen, perfectly treated, like the Black Hamburg, only that they require

a little longer time; and this it is much better to give than to attempt to compress their period of growth within so many months, in order to have the fruit ripe before September is out. The best late Grape-grower with whom I am acquainted never has his fruit ripe before the end of October, and he has for nearly ten years kept his fruit in excellent condition till May or June. Two of his bunches, which were exhibited at South Kensington several years ago, received high commendation and a certificate, and the two bunches were afterwards sold to a Covent Garden fruiterer for £4. This was in May. In my own case, I am content if the fruit be ripe by the end of October—and it always keeps well.

I do not object to starting Vines tolerably early, say about the beginning of March; but it would not be with the object of having the fruit ripe early, but to give them more time. Moderate temperatures and slow growth always produce the best results, and these are perfectly-matured wood and fruit, as maturity ought to be reckoned, and which properly consists in the building up of the tissues slowly and solidly from the beginning. The idea that the keeping qualities of Grapes, or their general excellence, can be materially altered by lowering the temperature and giving more air when they begin to colour, probably after having been pushed on in a forcing atmosphere, is one of the most absurd ever entertained. Why should we ventilate freely at the finishing season more than at any other time? When the Vines are in active growth is the time to give air freely, to make the most of the sun's light and heat, and to maintain a moderate temperature in order that the tissues may be solidified and matured as growth progresses. If the growth of the plant, wood, and fruit be not perfected so far when the ripening begins, no after treatment can make up for that deficiency. If the wood be not short-jointed and firm, or if the berries be not fleshy, neither can be greatly changed for the better by giving more air and less moisture for a few weeks at the end, and consequently the chance of imparting keeping qualities to the Grapes is so far lost. My impression is that well-grown and matured examples of late Grapes ought to keep nearly as well as do the common white Almeria Grapes of the shops, but I cannot get either the Lady Downes or Alicante to keep anything like so long as these do. They are as plump at the end of eight or ten months as when they were gathered from the Vines, though the footstalks of the berries seem to wither at an early stage. A certain percentage of the berries rot, but they never shrivel, and they will lie for weeks exposed to the air without altering in the least. To the touch they are always quite firm, and they eat as crisp and fleshy as a bit of Rhubarb stalk. Yet the Almeria Grape is thin-skinned, and not like our keeping sorts. But the question is, what causes them to keep so well? Is it their perfect maturity, and can we grow our late Grapes to keep like them? I have tried to keep both Lady Downes and Alicante in the same way—that is, packed in cork dust—but have failed. The experiment was tried with only a few good bunches; but they were a mass of rottenness in less than a month, while those in the fruit-room in bottles were as sound as usual. It does not seem to be the mode of keeping them, therefore, wherein the secret lies, and I can only conclude that they keep because they are grown out-of-doors, and thoroughly matured in the proper sense of the term, and as it is here understood. Very probably, could we ripen late Grapes out-of-doors in this country, they too would keep as long and as well as the shop Grapes; but we cannot do that, and can only imitate the conditions as far as possible under glass, and these conditions are—a long season of growth, abundance of air (far more than is usually given), a moderate temperature, and a dry atmosphere. From March to the end of October would not be too long a season of growth, not supposing the leaves to fall till November. During the whole of that period air should be given freely both day and night, consistently with the maintenance of the necessary temperature, which need never exceed 80° at the warmest season. Shutting-up and steaming the house with moisture, as has been usually practised, I can never regard as anything else than an evil practice, for which no sensible reasons can be given, and which cannot be advocated on either theoretical or practical grounds. The Vines need water, and plenty of it, at the root, but to bathe their stems and leaves in vapour ten

or twelve hours out of the twenty-four is what they dislike. Such treatment produces soft, spongy wood, thin, flabby leaves, and fleshless berries; the first augurs badly for future crops, the second encourages mildew or insect plagues, and the last bodes ill for the preservation of the fruit. CHEF.

Strawberries.—Of some eight varieties of Strawberries under cultivation last season, viz., Carolina superba, President, Frogmore Late Pine, Amateur, Dr. Hogg, Wonderful, Black Prince, and Lucas—the last-named sort proved itself to be the best. President, which is generally a first-rate Strawberry, owing to the wet weather rotted in a semi-ripe state. Black Prince is grown for preserving, and Carolina superba on account of its fine flavour. Amateur and Frogmore Late Pine apparently require a warm situation, as their berries did not swell up properly. Lucas has very good properties that make it worth special notice. It is a full cropper, and the fruit is of good size; it will bear carriage better than such as President, and it has a deeper red colour than that variety. This spring, however, Lucas was inferior to both Carolina superba and President as a forcer.—ROBERT M'KELLAR, *Abney Hall, Chesham.*

Hybrid between an Orange and Citron.—M. Oudemans has, according to the "Popular Science Review" (April 1877), observed a fruit half Orange and half Citron. Externally it had precisely the form and colour of a Citron; internally four of the compartments presented the colour and taste of the flesh of a Citron; the other five had the qualities of that of an Orange. The formation of this fruit may be explained in two ways: the tree which produced it may have been a hybrid between *Citrus medica* and *C. Anrattim*; or the flower which produced the fruit may have belonged to one of the above species, and have been fecundated, at least partially, by pollen of the other. On the first supposition the case would be parallel to that of *Cytisus Adami*; on the second, which M. Oudemans regards as most probable, we should have a fresh instance of the influence of the pollen on the fruit. [It would be interesting to know for certain which plant produced this fruit, whether the Orange or the Citron, or whether the two kinds named were growing in proximity. It should also be borne in mind that *Cytisus Adami* is a graft hybrid. Similar vagaries have been repeatedly observed in Oranges, Apples, Pears, and Peaches.—Ed.]

Vine Borders at Lambton Castle.—Allow me to inform Mr. Simpson (see p. 272) that it is my intention to make known in due time the results of my Vine border experiments and send samples of the Grapes to the Fruit Committee at South Kensington. Up to the present time I have been under the impression that a Vine border made entirely of manure had not been put in practice. Mr. Simpson, however, asserts that my experiment is not the first of the kind that has been made, and directs us to the book on the Vine, p. 82, where there is a record of Mr. Thomson's experiments on old Vines, the roots of which had penetrated the subsoil; at 12 ft. from the front of the house, he is stated to have taken out a trench, carefully working inwards until the old border was taken out and the roots placed in new soil. This was done in June 1855, when there was a crop of Grapes on the Vines. In 1861, Mr. Thomson, being desirous to force somewhat briskly, had a pit in close proximity with the roots filled with fermenting manure and leaves, into which the Vines naturally rooted. This was repeated in 1862, after which the Vines were done away with. In my case, the Vines were struck from eyes in the spring, and planted out of 8-in. pots in 1873, no soil being used, except a little round the newly-planted balls; the rest was cow manure perfectly free from straw. The front of this border is new walled round, and in time I hope to prove whether a rich border is good or bad. There is, it will be seen, a great difference between assisting a soil border with heating material, and growing Vines altogether in the compost just alluded to. The borders at Cole Orton do not quite hold, to my thinking, a sufficient quantity of soil; a border 7 ft. wide and 18 in. deep is insufficient, as a rule, to produce heavy crops of Grapes. On Vines in such a border I have certainly seen excellent crops, but on clearing away the front of the border, a good many heels were found through which the roots had made their way into a well-managed kitchen garden.—J. HUNTER.

Espalier Apple Trees.—The most economical way of training Apple trees, as regards space is the much-neglected espalier. Nothing forms so neat a blind to the vegetable quarters from the walks as espalier-trained trees; and no other mode of training is in worse repute at the present time. The first expense of espaliers is of course considerable if iron be used in their construction, but wooden stakes will answer, and they can in most places be procured good enough for that purpose; wire espaliers are of course to be preferred, yet rather than not have espalier-trained trees, I would be content with the stakes. In selecting trees for espaliers choose those on a dwarfing stock which are naturally of a strong-growing habit.—R. P. B.

THE FLOWER GARDEN.

HARDY FLOWERS IN LONDON GARDENS.

SPRING-FLOWERING bulbs are now everywhere in full beauty, especially Siberian Squills, *Triteleias*, Anemones, and Grape Hyacinths, the latter being in best condition where they have been planted thinly on raised beds or in patches. The white-flowered form (*Muscari botryoides album*) may now be seen beautifully in bloom at Kew, where may also be found the Italian Squill (*Scilla italica*) producing spikes of bright blue



Twin-flowered Violet (*Viola biflora*).

flowers in abundance. The striped Squill-like *Puschkinia scilloides* is also just now in great beauty in several gardens round London. *Leucojum pulchellum*, too, growing in the form of large tufts, is bearing quantities of gracefully-drooping spikes of Snowdrop-like blossoms, and though more common, the Crown Imperials (*Fritillaria imperialis*) with their drooping, brightly-coloured flowers, must not be overlooked; one at Kew, named *F. imperialis fl.-pl.*, bears large whorls of blossoms on plants not more than 6 in. high; *F. glaucescens*, too, is now profusely laden with dark bell-shaped blooms. *Iris virescens* and *I. tuberosa* are likewise now in flower, as is also the common garden *Iris* in some warm spots. The Apennine Windflower (*Anemone apennina*) is just now very showy



Alpine Rock-cress (*Arabis alpina*).

on some rockwork in Mr. Ware's grounds at Tottenham; and the Poppy Anemone may be seen in abundance in nearly every London garden. The Roman Heron's-bill (*Erodium romanum*) is fast opening its small purplish flowers. Strong plants of *Pulmonaria virginica* are now in bloom, as are also various kinds of *Epimedium*. The White Primrose (*Primula nivea*) is yielding an abundant crop of flowers, as is also *Primula viscosa*, the blossoms of which are rosy-purple. In Messrs. Osborn's nursery at Fulham may be found *Pulmonaria grandiflora* well in bloom; also several varieties of *Corydalis*,

especially the white-flowered form (*C. albiflora*) and the large, yellow blossoms of *Doronicum caucasicum* and *D. austriacum* are likewise very showy. Associated with these is a little *Vinca* not commonly seen elsewhere, named *V. minor punicea*; it has small, well-formed, rich purple flowers, and when grown on stumps of trees or on rough stones it is very attractive. The Spring Bitter Vetch (*Orobus vernus*), too, is just now producing multitudes of purple and blue pea-shaped blossoms. Amongst *Narcissi*, *N. odoratus* and *N. juncifolius* may be mentioned as being at present in flower. *Tulipa Greigi*, at Mr. Ware's, is furnished with large orange-scarlet blossoms, which, owing to the weather being so sunless, are not so bright as they may be expected to be later in the season. The Wild Wood Tulip (*Tulipa sylvestris*) and the Common Hyacinth are flowering freely amongst stones and dead roots in the wilder parts of the garden. To these may be added *Scopolia orientalis*, *S. carniolica*, and several varieties of *Polyanthus*. Among the latter the best is one called Golden Prince, a kind which produces masses of



Common Heart's-ease (*Viola tricolor*).



Alpine Barren-wort (*Epimedium alpinum*).

large yellow blossoms in the greatest possible profusion: either for spring gardening or for ordinary border decoration this kind is well worth attention. S.

LILY BULBS.

I SEE that "F. W. B." (p. 268) professes to give a sketch of the specimens I sent you: to give correct sketches I could have had no objection whatever, but I do regret that he has not placed them before your readers as I placed them before you. At p. 260 I said, with regard to the smaller specimen—"On the right, as it is fixed on a card, you will see the remains of the inner scale; on the left is a portion of the new flower-stem; and between the two you will see the seed-bud distinctly about the size of a canary seed." Now "F. W. B." has not only reversed the specimen in his drawing, but he has made the seed-bud to sit in the very bosom of a scale double the size of the original, and made it to sit as if it were a part of and attached to that scale, whereas, in the original, it was easy to see that it was no nearer to the inner scale than it was to the flower-stem itself, and that it was distinctly separate from both. As a description, he adds—"(*n*) Axillary or seed-bud of Lily bulb as seen in January." I never took up anything like what he has represented in January. With regard to the larger specimens, I said—"In order to leave no room for doubt, I send you portions of three bulbs of the same kind which I lifted only three days ago. I have picked off the scales carefully until I arrived at the base of the flower-stem, where I knew I should find what was once the germ or seed-bud, but which has now grown so much since January last as to entitle it to be called a young bulb. About $\frac{1}{2}$ in. from the base of the new flower-stem you will observe a round scar which marks the seat of the old flower-stem before it had entirely died down. Opposite this scar, on the other side of the new flower-stem—and this is worthy of special observation—you will see in all the three cases that it is there where the young bulb is seated, thus showing that the true or legitimate seed-bud has a pre-determined or settled position in the parent bulb, namely on the opposite side of the old flower-stem, the new flower-stem being always between them." Instead, however, of making the sketch with the young bulb on the right of the new flower-stem, and the scar of the old flower-stem on the left, so as to illustrate my description, "F. W. B." has done the very reverse; he has drawn the young bulb in the very front of the

flower-stem, leaving out of sight the scar or position of the old flower-stem; and, moreover, he has drawn the figure of a scale where no scale existed, and made the young bulb to sit in this scale attached to it, contrary to anything seen in the original! In the three specimens sent, I picked off every scale to show that they had no connection whatever with the young bulbs; and you must have noticed that in picking them off I left no vestige whatever of a scar or wound at the base of the young bulbs, showing that the young bulbs had no connection with the scales. "F. W. B." says:—"It will be seen at a glance that it is nothing more than one of the axillary buds which exist at the base of each scale in nearly all Lily bulbs." The sketches, as given by him, may induce some of your readers to think so; but in the specimens which I sent there were certainly no such appearances. With reference to the production of the sketches, "F. W. B." says:—"As the editor of THE GARDEN has kindly allowed me to examine 'Dunedin's' specimens (referred to at p. 260), I have ventured to sketch those which most clearly show the gist of the matter, as far as respects the 'seed-bud.'" From this it would appear just possible that in making the sketches his memory may have misled him; but still I think, as a simple act of justice to me, he should have compared his sketches with the original specimens before he committed them to the press. On the same page I find another letter, which alludes to me, signed by "The Author of Notes on Lilies." From the contents of the letter in question I am led to believe that it is from Messrs. Teutschell & Co., the authors of a pamphlet on "Lilies and their Culture," published at Colchester in 1873. If so, any specific questions they may be pleased to put to me, I shall be happy to answer to the best of my ability. The only question in the present letter which seems to require any answer, is contained in the following passage:—"Since 1873 knowledge has advanced, and the question to which 'Dunedin' now offers a solution was asked by the same author in your pages (Oct. 23, 1875)—'Do Lily bulbs make fresh growth every year as does the Crocus?' I submit this question for future decision." 'Dunedin' did not reply." If in 1875 I appeared in any way uncourteous, I now sincerely apologise to Messrs. Teutschell. The question, however, would have been more complete if the writer or writers had stated in what way the Crocus does make fresh growth? I have never cultivated Crocuses, and have, therefore, never taken the trouble to inquire into their bulb development; but Loudon tells us that "the new bulb always forms above the old one." In another part of their letter the Messrs. Teutschell say:—"By the-by, 'Dunedin' did not begin his experiments to 'trace the progress of the seed-bud till October, 1873.'" By what means they arrive at this conclusion I am at a loss to understand; I may mention, however, for their satisfaction—if satisfaction it may be considered—that it is just forty years and six months since I planted my first Lily bulb; and that I have still in my garden, not an offset, but a *bona fide* successional bulb of that same original bulb. Some would be inclined, according to the mistaken idea, to call it the same bulb; but it is not so, and as it is now about 2 in. above the ground I call it, for the present, the last bulb of its race. DUNEDIN.

The mere fact of "F. W. B.'s" sketches being reversed cannot surely be of much importance, inasmuch as this must necessarily depend upon which half of a section is examined. We agree with the "Author of Notes on Lilies" (see p. 268), who suggests that "Dunedin" should prove his "seed-bud" theory by exhibiting specimens illustrative of it before the Scientific Committee of the Royal Horticultural Society at one of their forthcoming meetings. This will evidently be the most satisfactory way of settling this matter.—Ed.]

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Protection of Bulbs in Winter.—The beds containing Crocuses, Snow-drops, Dog's-tooth Violets, and Bulbocodiums, &c., in Mr. Ware's Nursery, at Tottenham, are covered up in winter with a few inches in thickness of horse-droppings free from litter. This has the effect of enriching the beds, protecting the bulbs from severe frosts, and in spring when the plants are in bloom it prevents the flowers from becoming splashed with soil during heavy rains. Cocoa-nut fibre would answer the same purpose, but it would not enrich the soil.—S.

Sedum acre elegans.—For covering bare stones on rockwork, or as an edging plant this *Sedum* is surpassed by few others; even during the dull winter months a good carpet of it has a bright and attractive appearance. It succeeds best when divided and transplanted in autumn, as it then gets well established in thick masses by the following spring, and is therefore better able than it otherwise would be to withstand the drought of summer.—C. S.

Spring Flowers and the Late Wet Winter.—The past winter has fully illustrated that excessive rainfall is more destructive to these than the most severe frosts which we ever experience, for not only are many spring flowers unusually late this year, but some of the hardiest amongst them are more cut up than after severe frosts. *Myosotis dissitiflora*, that was full of bloom at Christmas, is scarcely open yet, and has a starved appearance, the spring frosts having greatly crippled it after the mild weather and excessive downpour. Bulbs and Primroses are, however, apparently better adapted for such seasons, as these are everywhere beautifully in bloom.—J. GROOM, *Henham*.

PLATE LIX.

THE VIRGINIAN MEADOW BEAUTY.

(RHEXIA VIRGINICA).

Drawn by H. HYDE.

AMONGST Melastomads—a family characterized by their distinctly, triple-nerved leaves and square stems—it is quite exceptional to find a hardy plant, but in the genus *Rhexia* we have two species, both perfectly hardy, namely, the Virginian and Maryland Meadow Beauties, the former of which is well represented in the accompanying plate, and ought to be easily cultivated in every garden in which a bog bed is to be found. To many, however, this *Rhexia* will be as much a novelty as though it had been but recently introduced, and yet its first introduction dates as far back as 120 years. In the early period of its naturalization it would appear to have enjoyed a due amount of appreciation, as I find it alluded to in some of our old books as though it were a moderately common plant; during my experience I have only in one instance met with it in any quantity and in a really flourishing condition, and that was at Messrs. Osborn's nursery at Fulham, which furnished the specimens from which the annexed plate was prepared. No one who glances at the representation here given will dispute its claim to general culture on the score of its beauty; its erect, rigid stems rise to a height of from 6 in. to 12 in., sparsely clothed with sessile, lanceolate, triple-nerved leaves, from a somewhat woody crown; the stems are square, slightly winged at the angles, and the leaves are covered with short, rigid, bristly hairs. It blooms in July and August, the flowers being produced in a successional manner. Its native country, as the specific name indicates, is Virginia; not that it is by any means confined to that State, as, in point of fact, it enjoys a tolerably wide distribution throughout the south-eastern States of North America, where it grows in swampy districts, in which the soil is a mixture of sand and peat, accompanied by a fair amount of superficial solidity. Its wiry roots do not appear to be at all adapted to the spongy material that suggests itself to our minds when the name bog or swamp is mentioned. Culturally speaking it is a plant that may be associated with the *Spigelia marilandica*, recently figured in THE GARDEN; where the one will thrive, success with the other may be reckoned as almost certain; in either case a cool subsoil, freely supplied with moisture during summer, is requisite. The only other species in cultivation, *Rhexia mariana*, differs from this chiefly in the leaves being broader, the hairs sparser and softer, and in the flowers having a purplish tinge; it appears, too, to be more restricted in its geographical range, occurring but rarely out of the State from which it takes its name. Like many other North American plants the foliage in the autumn changes to an intense crimson-scarlet, that renders a mass of the plant almost as conspicuous in its autumnal garb as when in full blossom.

The *Rhexias* are plants that are impatient of too much division, and to give them a fair chance good tufts should be obtained from their native localities. Those secured and planted in a sandy peat bed on a cool clay subsoil, the chances of success are almost as certain as, indeed, are the chances to the contrary, where the plants are broken up into infinitesimal fragments.

Botanic Gardens, Hull.

JAS. C. NIVEN.

Bamboo Rice.—There is a species of *Agave* which is said to blossom but once in a century, and the Bamboo that grows among the hills in the south-east of Mysore is scarcely less wonderful. The natives report that it seeds once every sixty years, and the produce thus yielded at this wide interval of time is known in that portion of India as Bamboo Rice. In the husk it resembles paddy that has been cleansed, but it approaches nearer to the appearance of Wheat, though the grains of this seed are somewhat smaller and longer. The villagers of Chamraj Nuggar Taluk, according to the daily papers, recently repaired to the region where this species of Bamboo is to be met with, and collected immense quantities of the seed, which falls in abundance under the clumps of Bamboo. The seed is swept and afterwards winnowed by hand, and when boiled it is sweet and palatable, and much more satisfying than Rice. A level valley about three miles in length, in the same locality, is one mass of Bamboo clumps, which since last October have been shedding their seeds in profusion.



MEADOW BEAUTY. (RHEXIA VIRGINICA.)

EVERGREEN SHELTER.

We have occasionally urged the value of evergreen belts or screens as a protection against the sweeping winds of winter. The shelter of sheds and other outhouses is excellent as far as it goes, but animals do not always get enough range and fresh air when confined to these buildings; they cost more than the planting of a few dozen trees. Cattle yards should always be shielded from wind by evergreen screens. Many years of trial have proved their peculiar value; they need not be planted so closely as a common hedge. Ten trees of Norway Spruce, planted 6 ft. apart, will in ten years give an efficient screen 66 ft. long and 18 ft. or 20 ft. high, if they have been properly cared for and cultivated well for a few of the first years. A

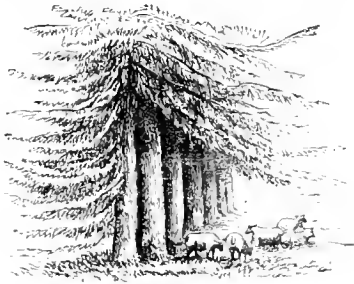


Fig. 1.

screen like this, on the windward side of a sheep yard, trimmed up or pruned on one side high enough for the sheep to pass under the branches freely, may be the means of saving many of their lives, and it certainly will economize a great deal of food. Such a screen, fitted for both sheep and cattle, is shown in fig. 1. Evergreen screens are likewise admirable protectors for dwellings; they add immensely to both beauty and comfort during drifting snow-storms, for which we care little under their green and genial shelter; they may be planted in irregular masses and groups, and with pleasing effect. It is easy to combine ornamental appearance and protection when the prevailing winds are on the sides of the house where there are no pleasant views. Suppose, for example, that the dwelling represented in fig. 2 suffers most from severe winds from the directions shown by the arrows, and that the best views are towards *a* and *b*, there will be no hesitation as to the position of the sheltering trees. Those shown in the woodcut indicate the



Fig. 2.

manner of their distribution. When the best views occur toward points from which the winds blow, a partial screen may be adopted, which will protect the house, and afford vistas through which distant objects may be partly seen. Or, in building, a site should be selected that will admit of proper planting. Or, the arrangement shown in fig. 3 may be adopted, the dwelling (*a*) being placed where the finest view is seen from it to the left. A dense evergreen plantation is made on the left for shelter, affording enough protection to the smaller shrubs and flower-beds shown in the woodcut between this plantation and the dwelling; but, in order to prevent the entire exclusion of the view on the left, walks are so laid out as to reach easily the summer-house (*b*), which is placed in full view of the extensive prospect on that side. An evergreen screen need not be expensive. The greatest cost is the time required for the trees to grow: this is the price which must be paid for all trees. But if those be selected which have natural vigour, and ample roots be secured at the time of their removal, and the ground be kept well cultivated and mellow

for a few of the first years, they will soon attain a large size. Norway Spruce grows fast, and this tree is, on the whole, best for screens. If not over 3 ft. high, careful removal will not check them more than equal to one year's growth, and unless they have been repeatedly transplanted, this size is as large as should be chosen. In some places, evergreen trees, such as *Arbor-vitæ*, White Pine, Spruce, &c., may be found on the margins of woods, and if the soil be of such a character that a large mass of earth may be taken up with the roots, they will do well. Such trees, if only 4 ft. or 5 ft. high, will be sure to live if they have 40 lb. or 50 lb. of earth in a flat, circular form, on the roots after removal. Those which are 7 ft. or 8 ft. high should have circle of earth 3 ft. in diameter, and should weigh 100 lb. or 200 lb. If nearly or entirely denuded of their roots, the probability is that not one in ten will live, and the few that do survive will be so stunted as not to recover their vigour for years. In selecting such trees, it is important to choose those which have been exposed in some degree in open ground, or on the margins of woods, and to place them where they will not be severely swept by winds. If taken out of woods where they have been exposed to neither wind nor snow, they will not be likely to endure the new exposure. On the whole, it will be found most satisfactory to select Evergreens from nursery rows, as these will grow most rapidly, and make a handsomer and more satisfactory screen. We ("American Cultivator") have estimated that in the course of twenty years we have saved over 1000 dollars'



Fig. 3.

worth of firewood and coal, on account of the protection from cold winds which Evergreens have afforded, to say nothing of the personal comfort and enjoyment of their ornamental appearance.

Effect of Climate on Plants.—Observations made during the Arctic Expedition have brought to light one or two curious facts in connection with the powers of growth possessed by different plants under varying conditions of climate. American research has proved that the seeds of certain plants, if gathered in one climate and sown in another, will germinate earlier or later, and with more or less vigour, according as the new climate is warmer or colder than the old. And even a perceptible change of climate is not required to show these results, a difference of a few degrees only in latitude is sufficient to do so. According to the "Country," Capt. Young, of the *Pandora*, has on board his yacht a curiosity in the shape of a Rose tree, grown in England, which has been on board ever since he left England for the Arctic Regions. When in the Polar cold the tree drooped, and to all appearance, died; but as soon as the vessel reached a warmer climate it revived, and is now in a perfectly healthy condition. The functions of life had been suspended while the tree remained in cold latitudes, but they were not destroyed. This fact is curious, as tending to prove that a tree which will stand frost at all will bear almost any amount of cold; and also that, if its natural growth and development be retarded at the proper season, the plant cannot defer the revival of its development till the next normal period, but will continue its development at the first opportunity, which, in this case, after the intense cold of the Arctic Regions, occurred in the more moderate cold—the comparative warmth—of an English November. It will be interesting to see if this plant will bloom naturally at the proper season next year.

Street Trees.—The planting of trees in some of the principal thoroughfares of London has for some time been occupying attention, and the Mary-lbone Vestry has just decided on effecting this improvement in Hamilton and Upper Hamilton Terrace, St. John's Wood, thus converting the road into an avenue, at an estimated cost of £372, half of which amount will be subscribed by the inhabitants.

THE PLANT-LORE OF SHAKESPEARE.

(Continued from p. 278.)

Cherry.

- (1) *Helena*. So we grew together,
Like to a double Cherry seeming parted
But yet a union in partition.
Two lovely berries moulded on one stem.
Midsummer Night's Dream, act iii., sc. 2.
- (2) *Helena*. O, how ripe in show
Thy lips those kissing Cherries, tempting show.
Ibid, act iii., sc. 2.
- (3) *Cousinance*. And its grandam will
Give it a Plum, a Cherry, and a Fig.
King John, act ii., sc. 1.
- (4) *Lady*. 'Tis as like you
As Cherry is to Cherry.
Henry VIII., act v., sc. 1.
- (5) *Gower*. She with her need composes
Nature's own shape of bud, bird, branch, or berry;
That even her art sisters the natural Roses,
Her inkle, silk, twin with the rubied Cherry.
Pericles, act v. (Chorus).
- (6) *Demetrius of Syracuse*.
Some devils ask but the paring of one's nail,
A rush, a hair, a drop of blood, a pin,
A Nut, a Cherry-stone.
Comedy of Errors, act v., sc. 4.
- (7) When he was by, the birds with pleasure look,
That some would sing, some other in their bills
Would bring him Mulberries and ripe Red Cherries,
He fed them with his sight, they him with berries.
Venus and Adonis.

Besides these, there is mention of "cherry-lips" and "cherry-nose," and the game of "cherry-pit." The Cherry (*Prunus cerasus*) is not a true native, for we have the authority of Pliny for stating that it was introduced into Britain by the Romans. But it has now become completely naturalized in our woods and hedgerows, while the cultivated trees are everywhere favourites for the beauty of their flowers, and their rich and handsome fruit. In Shakespeare's time there were almost as many, and probably as good varieties, as there are now.

Chestnuts.

- (1) *Witch*. A sailor's wife had Chestnuts in her lap,
And mounched, and mounched, and mounched.
Macbeth, act i., sc. 3.
- (2) *Petruchio*. And do you tell me of a woman's tongue
That gives not half so great a blow to the ear
As will a Chestnut in a farmer's fire?
Taming of Shrew, act i., sc. 2.
- (3) *Rosalind*. I'faith, his hair is of a good colour.
Celia. An excellent colour, your Chestnut was ever the only colour.
As You Like It, act iii., sc. 1.

This is the Spanish or Sweet Chestnut, a fruit which seems to have been held in high esteem in Shakespeare's time, for Lyte, in 1578, says of it, "Amongst all kindes of wilde fruites the Chestnut is best and meetest for to be eaten." The tree cannot be regarded as a true native, but it has been so long introduced, probably by the Romans, that grand specimens are to be found in all parts of England; the oldest known specimen being one at Tortworth, in Gloucestershire, which was spoken of as an old tree in the time of King John. It is one of our handsomest trees, and very useful for timber, and at one time it was supposed that many of our oldest buildings were roofed with Chestnut. This was the current report of the grand roof at Westminster Hall, but it is now discovered to be of Oak, and it is very doubtful whether the Chestnut timber is as lasting as it has long been supposed.

Clover.

- (1) *Burgandy*. The even mead that erst brought sweetly forth
The freckled Cowslip, Burnet, and green Clover.
Henry V., act v., sc. 2.
- (2) *Tamara*. I will enchant the old Androniciens
With words more sweet and yet more dangerous
Than baits to fish or Honey-stalks to sheep,
When, as the one is wounded with the bait,
The other rotted with delicious feed.
Titus Andronicus, act iv., sc. 1.

"Honey-stalks" are supposed to be the flower of the Clover. This seems very probable, but I believe the name is no longer applied. Of the Clover there are two points of interest that are worth notice. The Clover is one of the plants that claims to be the Shamrock of St. Patrick. This is not a settled point, and at the present day the Woodsorrel is supposed to have the better claim to the honour. But it is certain that the Clover is the "clubs" of the pack of cards. "Clover" is a corruption of "Clava," a club. In England we paint the Clover on our cards and call it "clubs," while in France they have the same figure, but call it "treffe."

Cloves.

- Biron*. A Lemon,
Longaville. Stuck with Cloves.
Love's Labour's Lost, act v., sc. 2.

As a mention of a vegetable product, I could not omit this passage, but the reference is only to the imported spice and not to the tree from which then, as now, the Clove was gathered. The tree is the *Eugenia caryophyllata*, and the Clove of commerce is the unexpanded flower.

Cockle.

- (1) *Biron*. Allons! allons! sowed Cockle reaps no corn.
Love's Labour's Lost, act iv., sc. 3.
- (2) *Coriolanus*. We nourish 'gainst our senate
The Cockle of rebellion.
Coriolanus, act iii., sc. 1.

In Shakespeare's time the word "Cockle" was becoming restricted to the Corn-cockle (*Lycnis Githago*), but both in his time, and certainly in that of the writers before him, it was used generally for any noxious weed that grew in corn-fields, and was usually connected with the Darnel and Tares. So Latimer:—"Oh, that our prelates would bee as diligent to sowe the corne of goode doctrine as Sathan is to sow Cockel and Darnel." "There was never such a preacher in England as he (the devil) is. Who is able to tel his dylgent preaching? which every daye and every houre laboreth to sowe Cockel and Darnel" (Latimer's Fourth Sermon). The Cockle or Campion is said to do mischief among the Wheat, not only, as the Poppy and other weeds, by occupying room meant for the better plant, but because the seed gets mixed with the corn, and then "what hurt it doth among corne, the spoyle unto bread, as well in colour, taste, and unwholesomnes is better known than desired." So says Gerarde, but I do not know how far modern experience confirms him. It is a pity the plant has so bad a character, for it is a very handsome weed, with a fine, blue flower, and the seeds are very curious objects under the microscope, being described as exactly like a hedgehog rolled up.

Coloquintida.

- Iago*. The food that now to him is as luscious as Locusts, shall be to him shortly as bitter as Coloquintida.
Othello, act i., sc. 3.

The Coloquintida, or Colocynth, is the dried fleshy part of the fruit of the Cucumis or *Citrullus Colocynthis*. As a drug it was imported in Shakespeare's time and long before, but he may also have known the plant. Gerarde seems to have grown it, though from his describing it as a native of the sandy shores of the Mediterranean, he perhaps confused it with the Squirting Cucumber (*Momordica Elaterium*). It is a native of Turkey, but has been found also in Japan. All the tribe are handsome-foliaged plants, but they require room. On the Continent they are much more frequently grown in gardens than in England, but the hardy perennial Cucumber (*Cucumis perennis*) makes a very handsome carpet where the space can be spared, and the Squirting Cucumber (also hardy and perennial) is worth growing for its curious fruit.

Columbine.

- (1) *Arnoldo*. I am that flower,—
Dumain. That Mint.
Longaville. That Columbine.
Love's Labour's Lost, act v., sc. 2.
- (2) *Ophelia*. There's Fennel for you and Columbines.
Hamlet, act iv., sc. 5.

This brings us to one of the most favourite of our old-fashioned English flowers. It is very doubtful whether it is

a true native, but from early times it has been "carefully nursed up in our gardens for the delight both of its forme and colours (Parkinson);" yet it had a bad character, as we see from two passages quoted by Steevens—

What's that—a Columbine?

No! that thankless flower grows not in my garden."

All Fools, by Chapman, 1605.

and again in the 15th Song of Drayton's *Polyolbion*.—

"The Columbine amongst they sparingly do set."

Both the English and the Latin names are descriptive of the plant. Columbine, or the Dove-plant, calls our attention to the "resemblance of its nectaries to the beads of pigeons in a ring round a dish, a favourite device of ancient artists (Dr. Prior);" or to "the figure of a hovering dove with expanded wings, which we obtain by pulling off a single petal with its attached sepals (Lady Wilkinson);" while the Latin name, *Aquilegia*, is generally supposed to come from *aquilegus*, a water-carrier, alluding to the water-holding powers of the flower; it may, however, be derived from *aquila*, an eagle, but this seems more doubtful.

As a garden plant the Columbine still holds a favourite place. Hardy, handsome, and easy of cultivation, it commends itself to the most ornamental garden and to the cottage garden, and there are so many different sorts (both species and varieties) that all tastes may be suited. Of the common species (*A. vulgaris*) there are double and single, blue, white, and red; there is the beautiful dwarf *A. pyrenaica*, never exceeding 6 in. in height, but of a very rich deep blue; there are the red and yellow ones (*A. Skinneri* and *A. formosa*) from North America; and, to mention no more, there are the lovely *A. cœrulea* and the grand *A. chrysantha* from the Rocky Mountains, certainly two of the most desirable acquisitions to our hardy flowers that we have had in late years.

Cork.

(1) *Rosalind*. I prythee take the Cork out of thy mouth, that I may hear thy tidings.—*As You Like It*, act iii., sc. 2.

(2) *Clown*. As good thrust a Cork into hog'shead.
Winter's Tale, act iii., sc. 3.

(3) *Cornelia*. Bind fast his Corky arms.—*King Lear*, act iii., sc. 7.

It is most probable that Shakespeare had no further acquaintance with the Cork tree than his use of Corks. The living tree was not introduced into England till the latter part of the seventeenth century, yet it is very fairly described both by Gerarde and Parkinson. The Cork, however, was largely imported, and was especially used for shoes. Not only did "shoemakers put it in shoes and pantofles for warmness sake," but for its lightness it was used for the high-heeled shoes of the fashionable ladies. I suppose from the following lines that these shoes were a distinguishing part of a bride's trousseau:—

Strip off my bride's array,
My Cork-shoes from my feet,
And, gentle mother, be not coy,
To bring my winding sheet.

The Bride's Burial—"Roxburghe Ballads."

The Cork tree is a necessary element in all botanic gardens, but as an ornamental tree it is not sufficiently distinct from the *Ilex*. Though a native of the south of Europe it is hardy in England.

Corn.

(1) *Gonzalo*. No use of metal, Corn, or wine, or oil.
Tempest, act ii., sc. 1.

(2) *Duke*. Our Corn's to reap, for yet our tithes to sow.
Measure for Measure, act iv., sc. 1.

(3) *Titanus*. Playing on pipes of Corn.
The green Corn
Hath rotted ere his youth attained a beard.
Midsommer Night's Dream, act ii., sc. 1.

(4) *K. Edward*. What valiant foemen, like to autumn's Corn,
Have we mowed down in tops of all their pride.
3rd Henry VI., act v., sc. 7.

(5) *Pucelet*. Talk like the vulgar sort of market men
That come to gather money for their Corn.
1st Henry VI., act iii., sc. 2.

Poor market folks that come to sell their Corn.—*Ibid.*

Good morrow, gallants! want ye Corn for bread!—*Ibid.*

Burgundy. I trust, ere long, to choke thee with thine own,
And make thee curse the harvest of that Corn.—*Ibid.*

(6) *Duchess*. Why droops my lord like over-ripened Corn
Hanging the head at Ceres' piteous load?
2nd Henry VI., act i., sc. 2.

(7) *Warwick*. His well-proportioned beard make rough and ragged
Like to the summer's Corn by tempest lodged.
Ibid., act iii., sc. 2.

(8) *Mowbray*. We shall be winnowed with so rough a wind
That even our Corn shall seem as light as chaff.
2nd Henry VI., act iv., sc. 1.

(9) *Macbeth*. Though bladed Corn be lodged and trees blown down.
Macbeth, act iv., sc. 1.

(10) *Longaville*. He weeds the Corn, and still lets grow the weeding.
Love's Labour Lost, act i., sc. 1.

(11) *Biron*. Allons! allons! sowed Cockle reaped no Corn.
Ibid., act iv., sc. 3.

(12) *Edgar*. Sleepest or wakest thou, jolly shepherd?
Thy sheep be in the Corn.
King Lear, act iii., sc. 1.

(13) *Demetrius*. First thrash the Corn, then after burn the straw.
Titus Andronicus, act ii., sc. 3.

(14) *Marcus*. First let me teach you how to knit again
This scattered Corn into one mutual sheaf.
Ibid., act v., sc. 3.

(15) *Pericles*. Our ships are stored with Corn to make your needy bread.
Pericles, act i., sc. 1.

(16) *Cleon*. Your grace that fed my country with your Corn.
Ibid., act iii., sc. 3.

(17) *Menenius*. For Corn at their own rates.—*Coriolanus*, act i., sc. 1.

Marcus. The gods sent not Corn for the rich men only.—*Ibid.*

Marcus. The Volsci have much Corn.—*Ibid.*

Citizen. We stood up about the Corn.—*Ibid.*, act ii., sc. 3.

Brutus. Corn was given them gratis.—*Ibid.*, act iii., sc. 1.

Coriolanus. Tell me of Corn!—*Ibid.*

The Corn of the storehouse gratis.—*Ibid.*

The Corn was not our recompense.—*Ibid.*

This kind of service
Did not deserve Corn gratis.—*Ibid.*

(18) *Cornwall*. I am right glad to catch this good occasion
Most thoroughly to be winnowed, where my chaff
And Corn shall fly asunder.
Henry VIII., act v., sc. 1.

(19) *Cornwall*. Her foes shake like a field of beaten Corn
And hang their heads with sorrow.—*Ibid.*, act v., sc. 1.

(20) *K. Richard*. We'll make foul weather with despised tears;
Our sighs and they shall lodge the summer Corn.
Richard II., act iii., sc. 3.

(21) As Corn o'ergrown by weeds, so heedful fear
Is almost choked by unresisted lust.—*Rape of Lucrece*.

I have made these quotations as short as possible. They could not be omitted, but they require no comment.

Cowslip.

(1) *Burgundy*. The freckled Cowslip, Burnet, and sweet Clover.
Henry V., act v., sc. 2 (see Burnet).

(2) *Queen*. The Violets, Cowslips, and the Primroses
Bear to my closet.—*Cymbeline*, act i., sc. 6.

(3) *Iachimo*. On her left breast
A mole, cinque-spotted, like the crimson drops
P' the bottom of a Cowslip.—*Ibid.*, act ii., sc. 2.

(4) *Ariad*. Where the bee sucks there lurk I,
In a Cowslip's bell I lie.—*Tempest*, act v., sc. 1.

(5) *Thibet*. Those yellow Cowslip cheeks.
Midsommer Night's Dream, act v., sc. 1.

(6) *Fairy*. The Cowslips tall her pensioners be:
In their gold coats spots you see;
Those be rubies, fairy favours,
In those freckles live their savours:
I must go seek some dewdrops here
And hang a pearl in every Cowslip's ear.—*Ibid.*, act ii., sc. 1.

"Cowslips! how the children love them, and go out into the fields on the sunny April mornings to collect them in their little baskets, and then come home and pick the pips to make sweet, unintoxicating wine, preserving at the same time untouched a bunch of the goodliest flowers as a harvest-sheaf

of beauty! and then the white soft husks are gathered into balls and tossed from hand to hand till they drop to pieces, to be trodden upon and forgotten. And so at last, when each sense has had its fill of the flower, and they are thoroughly tired of their play, the children rest from their celebration of the Cowslip. Blessed are such flowers that appeal to every sense." So wrote Dr. Forbes Watson in his very pretty and Ruskinian little work, "Flowers and Gardens," and the passage well expresses one of the chief charms of the Cowslip. It is the most favourite wild flower with children. It must have been also a favourite with Shakespeare, for his descriptions show that he had studied it with affection. Milton, too, sings in its praise:—

Now the bright morning star, day's harbinger,
Comes dancing from the East, and leads with her
The flowering May, who from her green lap throws
The yellow Cowslip and the pale Primrose

Song on May Morning.

Whilst from off the waters fleet,
Then I set my printless feet
O'er the Cowslip's velvet head
That bends not as I tread.

Sabrina's Song in "Comus."

But in Lycidas he associates it with more melancholy ideas:—

With Cowslips wan that hang the pensive head,
And every flower that sad embroidery wears.

This association of sadness with the Cowslip is copied by Mrs. Hemans, who speaks of "Pale Cowslips, meet for maiden's early bier;" but these are exceptions. All the other poets who have written of the Cowslip (and they are very numerous) tell of its joyousness, and brightness, and tender beauty, and its "bland, yet luscious, meadow-breathing scent." The names of the plant are a puzzle; botanically it is a Primrose, but it is never so called. It has many names, but its most common are Paigle and Cowslip. Paigle has never been satisfactorily explained, nor has Cowslip. Our great etymologists, Cockayne, and Dr. Prior, and Wedgwood, are all at variance on the name, and Dr. Prior assures us that it has nothing to do with either "cows" or "lips." But we all believe it has, and without inquiring too closely into the etymology, we connect the flower with the rich pastures and meadows of which it forms so pretty a spring ornament, while its fine scent recalls the sweet breath of the cow, "just such a sweet, healthy odour is what we find in cows; an odour which breathes around them as they sit at rest on the pasture, and is believed by many, perhaps with truth, to be actually curative of disease" (Forbes Watson).

Botanically, the Cowslip is a very interesting plant. In all essential points the Primrose, Cowslip, and Oxlip are identical, the Primrose, however, choosing woods and copses and the shelter of the hedgerows, the Cowslip choosing the open meadows, while the Oxlip is found in either. The garden "Polyanthus of unnumbered dyes" is only another form produced by cultivation, and is one of the most favourite plants in cottage gardens. It may, however, well be grown in gardens of more pretension; it is neat in growth, handsome in flower, of endless variety, and easy cultivation. There are also many varieties of the Cowslip, of different colours, double and single, which are very useful in the spring garden.

Crabs (see Apple).

Crocus (see Saffron).

Crow-flowers.

Queen. Therewith fantastic garlands did she make
Of Crow-flowers, Daisies, Nettles, and Long Purples.

Hamlet, act iv., sc. 7.

The Crow-flower is now the Buttercup, but in Shakespeare's time it was applied to the Ragged Robin (*Lychnis Flos-cuculi*), and I should think that this was the flower that poor Ophelia wove into her garland. Gerarde says, "They are not used either in medicine or in nourishment; but they serve for garlands and crowns, and to decke up gardens." We do not now use the Ragged Robin for the decking of our gardens, not that we despise it, for it is a flower that all admire in the hedgerows, but because we have other members of the same family as easy to grow and more handsome, such as the double variety

of the wild plant, *L. chalconica*, *L. Lagascae*, *L. fulgens*, *L. Haageana*, &c.

Crown Imperial.

Perdita. Bold Oxlips and
The Crown Imperial.

Wander's Tale, act iv., sc. 4.

The Crown Imperial is a Fritillary (*F. imperialis*). It is a native of Persia, Afghanistan, and Cashmere, but it was very early introduced into England from Constantinople, and at once became a favourite. Chapman, in 1595, spoke of it as—

"Fair Crown Imperial, Emperor of flowers."

Gerarde had it plentifully in his garden, and Parkinson gave it the foremost place in his "Paradisus Terrestrius." "The Crown Imperial," he says, "for its stately beautifullnesse deserveth the first place in this our garden of delight, to be here entreated of before all other Lillies." And if not in Shakespeare's time, yet certainly very soon after there were as many varieties as there are now. The plant, as a florist's flower, has stood still in a very remarkable way. Though it is apparently a plant that invites the attention of the hybridizing gardener, yet we still have but the two colours, the red and the yellow (a pure white would be a great acquisition), with double flowers, flowers in tiers, and with variegated leaves. And all these varieties have existed for 200 years.

As a stately garden plant it should be in every garden. It flowers early, and then dies down. But it should be planted rather in the background, as the whole plant has an evil smell, especially in sunshine. Yet it should have a close attention, if only to study and admire the beautiful interior of the flower. I know of no other flower that is similarly formed, and it cannot be better described than in Gerarde's words:—"In the bottome of each of the bells there is placed six drops of most cleere shining sweet water, in taste like sugar, resembling in shew faire Orient pearles, the which drops, if you take away, there do immediately appeare the like; notwithstanding, if they may be suffered to stand still in the floure according to his owne nature, they wil never fall away, no, not if you strike the plant untill it be broken." How these drops are formed, and what service they perform in the economy of the flower has not been explained, as far as I am aware; but there is a pretty German legend which tells how the flower was originally white and erect, and grew in its full beauty in the garden of Gethsemane, where it was often noticed and admired by our Lord; but in the night of the agony, as our Lord passed through the garden, all the other flowers bowed their heads in sorrowful adoration, the Crown Imperial alone remaining with its head unbowed, but not for long—sorrow and shame took the place of pride, she bent her proud head, and blushes of shame, and tears of sorrow soon followed, and so she has ever continued, with bent head, blushing colour, and ever-flowing tears. It is a pretty legend, and may be found at full length in "Good Words for the Young," August, 1870.

H. N. ELLACOMBE.

(To be continued.)

WATER IN SMALL GARDENS.

THERE are few greater mistakes made in gardens than placing artificial water in small ones. This fault is more frequent on the Continent than with us. There is, however, one virtue in artificial waters seen abroad—they are rarely deep or large enough to drown the children, though ugly enough to irritate sensitive adults. With us the artificial water generally assumes the form of a duck-pond; in France it is much nearer to a hand-basin. There if the "lawn" be only as large as a tablecloth, a tub in cement is sure to find a place on it. Happily in our small gardens water is much seldomer seen. There are good reasons why artificial water should never be seen in a small garden: the effect of still water is only pleasant where it sparkles in the sun in broad masses. Nothing can be much more offensive than small pools of unclean water. Near a dwelling-house they are objectionable for other reasons, besides, the space they occupy is precious for better aims. Good design will not in these cases do much for us or compensate for the error of forming artificial water where there is not abundant room for it without curtailing the space needed for more important objects.

TREES AND SHRUBS.

OPEN SITUATIONS BEST FOR CONIFERS.

SOME observations made from time to time regarding the effects of shade, shelter, light, air, &c., upon the growth of Conifers, and their bearing upon the planting, thinning, and work attending plantations generally, may perhaps interest some of your readers. My notes have been taken with a view to ascertain how far thick planting, with the object of shelter, was advantageous in young plantations. My first notes refer to the Wellingtonia and its rate of growth under different circumstances as regards light and shelter. Eight or nine years ago, among a number of young trees of the same age which were moved, two, as nearly as possible of the same size and girth, were selected. No. 1 was planted in an open but sheltered situation, no trees or buildings being near it; and the other, No. 2, was planted in an open space also, but was shaded by tall trees growing not more than 30 ft. or 40 ft. away from it, otherwise it was much better sheltered from the winds than No. 1; and both were treated alike as regards soil. They were each about a yard high when moved, and fairly furnished with branches, but at the end of the second year after planting No. 1 was by far the bushiest tree, though No. 2 was the tallest; and since that time the disparity between them has increased every year, particularly as regards the thickening of the trunk and branch growth, No. 1 being a fine, densely-furnished tree, with a thick bole, and No. 2 tall and attenuated, both in the stem and branches. When last measured, not a month ago, No. 1 was 12 ft. high, with a bole 9 in. in diameter 1 ft. from the ground, and No. 2 was fully 13 ft. high, and only 4½ in. in diameter in the bole at the same distance from the ground, or just half the diameter of the other. The next instance relates to the Deodar. Of a number of old trees, all of the same age, and about the same height (30 ft. or more), the finest tree, which grows in an open and rather exposed situation, has a trunk 15 in. in diameter; and its near neighbour, only partially shaded, and much better sheltered, measures only 10 in. at the same distance from the ground. Others range between these figures according as their position is a shaded one or otherwise. One of the largest—as to girth—is growing in an exposed situation. Other trees of the same kind, but younger, exhibit still greater contrasts in growth, and their girth appears in every case to be just in proportion to the amount of light and air which they receive. They were all planted about sixteen years ago, and all, except two or three of the number, have been once moved since. Those which were not moved are now 19 ft. high or thereabouts, and measure 8 in. in diameter 1 ft. from the ground; they are growing in an open situation. The others are planted on each side of a glade, and are more or less shaded by tall trees behind, some being more unfavourably situated in that respect than the others. They range from 14 ft. to 17 ft. in height, and the most shaded tree of the number has a stem only 3 in. in diameter, while the thickest measures a little over 5 in., all being measured 1 ft. from the ground. It is needless to state, perhaps, that the trees with the thickest trunks are in every case the best furnished with branches. If we turn to older trees, the same facts are observable. There are some fine Larch trees scattered about the woods here; and, though they are all of the same age, no one would suppose them to be so, judging merely by their dimensions. In their case it is easy to see how much the thickening of the trunk is influenced by the area of branch growth. One

group of trees growing in the bottom of a deep ravine, where they are disadvantageously placed as regards light and air—not to mention the fact of their having been so crowded all their lives as never to have carried more than just a few branches at their tops—are between 70 ft. and 80 ft. high, and not more than 1 ft. in diameter at their base; but this thickness or a trifle less, they carry with them nearly up to where the branches begin, from which point they taper off rapidly. Standing upon one side of the ravine, nearly opposite their middle, one is able to get a fair idea of their girth, and it is noticeable that the thickening process terminates almost abruptly where the branches begin to decay and fall off. Ten feet of green top is about the most which any of the group possesses, and I dare say they carry as many branches now as they ever have done at any former period.

J. S.

BEST METHOD OF SEASONING TIMBER.

THE best method of seasoning timber at present in use is to fell the trees between the end of September and beginning of April, to have Pine logs raised 1 ft. above the ground, and exposed to light and air without shade. Having lain thus for two years, they may be sawn into boards or planks, and stored in a dry but airy shed for another year, before being worked up by the carpenter. Hardwoods ought to be stored in like manner till the bark falls off, when they should be sawn into planking for use. The Sycamore, Maple, and Birch, however, soon become discoloured; the best method is to chip and saw them immediately after the sap is out of them, then store them in a dry shed as above. This process, however, costs much labour and expense. To avoid these, I recommend the adoption of the following method:—Mark all trees which will be useful or saleable during the summer, as sickly plants are then more easily observed. During September ring or girdle all trees marked 1½ in. round the bole where they are to be cut; then allow twelve months to elapse before felling, during which time they will have died, and I believe will have lost nearly two-fifths of their weight, and be fit for sawing up at once. The result would be the en-



Small Lawn with Artificial Water (see p. 298).

hanced value of the timber, which on a largely-wooded property would be considerable. For example, 150 acres of ground are to be cleared, upon which are growing 60 tons of wood per acre, making 9000 tons in all, at a distance of 110 miles from Glasgow per railway, and 6 miles from the nearest station; reckoning the cost of dragging and carting per ton at 7s. 6d., and railway carriage 12s. 6d., total 20s. per ton, the gross expense of transit would be £9000; calculating that nearly two-fifths can be saved by ringing the trees as above described, the cost will be reduced by about 6s. 6d. per ton, equal to £2925, and the gross expense to £9075. Thereby the seller would receive £2925 more for his wood, and, allowing £100 for the expense of ringing the trees, would save £2825. I recommend the above system to all interested in the sale or manufacture of timber, as the best means to get timber economically seasoned and ready for immediate use. Where Birch wood is being used for bobbins, this process of ringing would obviate the need of chipping, and by allowing the trees to stand nine months, they would be ready for immediate use. If the wood be wanted for fence stobs, ringing would render them serviceable the next season, when they might be conveniently charred by their own tops or branches, which would cause them to last double the time in the ground. The process of ringing, then, has two advantages—increasing the value of timber, and seasoning it in the most economical way.—T. WILKIE, in ‘Arboreal-cultural Society’s Proceedings.’

A Useful Wall Plant.—The most attractive plant now to be found on the walls at Kew is probably *Prunus triloba*. It is literally covered from top to bottom with pale pink and rosy blossoms, the beauty of which is greatly enhanced by their being associated with Ivy and other Evergreens.—S. C.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Fuchsias, that flowered last summer and were cut back during the winter, started, and re-potted some time ago, will come into bloom early; to further advance them in this respect the young shoots should not be stopped more than once. Cuttings struck at the end of last summer, and kept going in a little warmth through the winter, make much the handsomest specimens for flowering in either a small or large state; if wanted to bloom as early as they can be had, the roots must not have too much room—6-in. or 8-in. pots will be sufficiently large; it will be well to move a few into 12-in. or 13-in. pots—these will make fine plants, and will succeed those that bloom earlier. To induce a disposition to flower late in the season, the points of the shoots will require stopping twice or thrice after the present time. The front of a Vinery at work will suit them admirably, as they will be somewhat shaded, which condition favours growth more than the production of flowers; and if exposed to the full light after this time they will have a greater disposition to bloom than to make growth. Syringe them well overhead every day to keep down red spider; if this insect obtain a footing upon them at the present time, it quickly disfigures all the foliage, and makes the plants unsightly.

Pelargoniums.—Large-flowered and Fancy Pelargoniums should now be kept at a temperature of 45° in the night, syringing them slightly overhead in the afternoons at the time the house is closed; the pots ought to be elevated so that the heads of the plants are as near the glass as possible; by this means both foliage and flowers will be much stouter, the plants requiring much less artificial support by sticks and ties.

Amaryllis and Vallota purpurea.—Plants of Amaryllis that are now pushing up their flowers must be well supplied with water; weak liquid manure will be of great assistance to them, especially the deciduous kinds, that make the greater portion of their leaves for the season simultaneously with the growth of the flower-stem; they should have plenty of light, otherwise the leaves will be drawn up, a defect which no subsequent treatment through the season can remedy, and it is upon the production of the greatest quantity of healthy foliage that next year's flowering is in a great measure dependent. The nearly-allied Vallota purpurea will now be making its growth; the soil must not be allowed to become dry, or the plants will be much injured. This is one of the most useful late summer and autumn-flowering plants we possess; it is also one of the best window plants that can be grown, requiring little space and thriving well in an ordinary sitting-room. If a few plants could be placed in a Vinery at work, or in any position where they will receive a somewhat greater heat than they would in an ordinary greenhouse, they will flower earlier, and by subjecting another portion of the stock to cooler treatment they will afford a succession of bloom. Vallotas may be increased very fast from the numerous offsets they produce, which are readily separated from the larger bulbs without disturbing them; if these offsets be now taken off and inserted (six or eight together) half their depth in 4-in. pots filled with sandy soil and subjected to ordinary greenhouse treatment, they will grow on and make fine, healthy, blooming plants in the course of two or three years.

Vines started some time ago will now be coming into bloom; there is little difficulty in inducing such kinds as Black Hamburgh and White Frontignan to set, but where Muscats are grown, especially when mixed with Hamburghs, they are not so easily managed, as they require more warmth, yet the high night temperature frequently recommended for Muscats need not be kept up, as they may be induced to set freely without. The point to be observed is that, during the time of blooming, the daily temperature is raised sufficiently by combined sun and fire-heat, and in sunless weather by fire alone, accompanied with a sufficient amount of air to dry the atmosphere of the house, and thus cause the more easy dispersion of the pollen; and whilst the atmosphere is dry, the canes or wires to which the shoots are tied should be struck freely with the hand from bottom to top; the vibration thus produced will greatly assist the fertilization: it will be well to repeat this shaking process twice or so during the middle of the day. Cease syringing from the time the first flowers expand, but do not keep the atmosphere too dry morning and evening. Where there are Vines that it is desirable to retard as late as possible, it will be well to keep them tied across the front of the house as low down as convenient, admitting air at the front lights, as in this position they will not be much under the influence of the sun, and consequently cooler than if tied to the wires near the glass. As to the temperature kept up in a house where such late Vines are grown it will, of course, depend upon what pot plants are required to be grown in the house. Amateurs

generally want to accommodate many subjects besides the Vines; therefore it will be necessary to give some consideration to the requirements of the pot plants, which would not well bear the admission of such a volume of cold air as the Vines would stand, and which would be an assistance in further retarding them; but a good deal may be effected by admitting it at the opposite point from where the wind blows: for instance, if coming full upon the front lights, open the roof ventilators or shutters in the back-wall freely, leaving some on at night, being careful that the inside temperature does not fall below the freezing point, as nearly all greenhouse plants will suffer more from too low a temperature when growth has commenced than when dormant, and when less water was needed at the roots.

Annals.—The almost unprecedentedly wet condition of the soil resulting from the continued autumn and winter rains has hitherto rendered it necessary to postpone beyond the usual time the sowing of nearly all kinds of seeds: hardy annuals will be no exception. In such a season as the present the difference in the condition of light, sandy soils from those of a heavier, adhesive character will necessitate considerable variation in the time of sowing seeds of many kinds of plants, especially those of a small size, for although it is always advisable to put in seeds of annuals sufficiently early, that the plants may attain good hold of the ground before dry weather sets in, yet from the cold, wet condition of the soil in many localities this spring, if sown too early they will rot. It is much better to wait a little than to run any risks in this matter, for even should the seeds germinate, until there is sufficient warmth in the soil, the plants make such slow progress as to become a prey to slugs, which are always unusually numerous during a cold, wet spring. I should recommend the sowings of the seeds of annuals to be made completely on the surface, choosing a dry day, smoothing the soil with the rake where the patches or rows are to be, on which scatter the seeds, covering with some dry loose material, than which nothing is better than old potting soil, in which such things as Fuchsias, Pelargoniums, Calceolarias, Cinerarias, or any plants that are annually shaken out have been grown. If this soil have been kept in a shed under cover, and be mixed with a little burnt or charred refuse, wood ashes, or fine-sifted coal ashes, the mixture will not only assist the seeds to vegetate, but will to some extent prevent the slugs from attacking the plants. Since ordinary bedding plants came so much into fashion, hardy annuals in many cases have not received the attention which they deserve, and yet amongst them may be enumerated some of the most beautiful flowering subjects we possess. Against their use it is frequently urged that their blooming is of short duration, but in the case of many this is frequently attributable to the indifferent treatment they receive; it is often considered that any situation where nothing else can be got to grow is good enough for them, consequently they are sown partially under the shade of trees that have impoverished the soil to an extent that no plant can exist in it. The nature of an annual is such that its growth must be quick, and it is well known the quicker the natural growth of a plant the more essential is it that it should have abundant food in the shape of thoroughly enriched soil. Where the ground is at all poor, plenty of good manure, and where heavy and retentive, leaf-mould in addition should be pointed in 6 in. or 8 in. deep. Another cause by which annuals have frequently not the most remote chance of exhibiting their true character, or continuing to flower for their allotted time, is that they are sown so thickly, and not thinned afterwards; or, if this latter operation be performed at all, it is not nearly carried out to the requisite extent—the result is, that the plants stand as close as weeds in a foul garden. Even such common subjects as Nemophilas, Mignonette, Malvas, Lupines, Linums, Larkspurs, Gillias, Gaillardias, Esehseholtzias, Erysimums, Dianthus, and others, should always have as much room allotted to each individual plant as will permit of their growing on to their full natural size without encroaching upon each other; by this means they attain a character, and continue flowering for a length of time, which they are otherwise incapable of doing when both roots and tops are overcrowded. Strong-growing, large-spreading varieties of Nasturtiums, climbing Convolvulus, Sweet Peas, and similar plants should have an open situation, and also plenty of room. The Helichrysms, of which there are now so many splendidly-coloured varieties, of dwarf, compact habit, should not be sown before the end of the month in dry, light soil; where the ground is wet they are better sown in boxes or pots, and transplanted. Dried natural flowers can never be so attractive as fresh living ones; yet, if these Everlastings be cut within a day or two of the flowers opening when the colours are at their brightest, and dried quickly by hanging up in a room where a fire is kept, they can be made into most attractive groups with dried Grasses for the embellishment of vases through the winter. If the beautiful tints and varieties of this flower, as it now exists, were better known, they would be much more generally cultivated.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

April 16.—Potting Achimenes; shaking out and repotting Solanums, and placing them in heat. Shifting Balsams into 8-in. pots. Sowing Veitch's Autumn Giant and Walcheren Cauliflowers, Veitch's Protecting, Cooling's Matchless, Snow's Early White, and Dilcock's Bride Broccoli; also Red and White Cabbage. Planting out frame-sown Lettuce and Cauliflower plants. Putting standard *Maréchal Niel* Roses into Peach-house; also 100 pots of Musk. Placing Camellias in heat. Making Melon-pit ready for planting.

April 17.—Potting off tender annuals, Vine eyes, and Fuchsias. Shifting all stove plants that require it into larger pots; also Chrysanthemums without stopping their shoots. Sowing Mignonette on borders; also Cottager's Kale, Cocoa-nut Cabbage, White Cos, Alexandra and Neapolitan Cabbage Lettuces, Cucumbers, and Melons. Planting Globe Artichokes and Lettuces from autumn-sown seed-beds; also planting a border of autumn-sown Cauliflower plants that have previously been pricked out. Pricking out Celery in frames; also Sweet Basil, Marjoram, and Ice plants. Putting Heaths into cold pits. Picking dead flowers off Indian Azaleas and placing the plants in a warm greenhouse. Getting bulbs that have been forced in pots from under greenhouse stage and placing them under the protection of a wall out-of-doors. Sanding, rolling, and otherwise putting walks in good order. Digging vacant land and hoeing among growing crops.

April 18.—Putting Caladiums into 10-in. pots. Shifting Tree Mignonette and young Vines, and potting Perillas and Centaureas in 4-in. pots. Sowing Fulmer's French Beans, Salsafy, Scorzonera, Ivory's Pink Nonosuch Celery, and Radishes of different kinds. Planting out *Cerastium tomentosum* and Strawberries. Spawning Mushroom-bed and afterwards firmly heating it down. Pricking out first batch of Cinerarias, Primulas, and Herbaceous Calceolarias. Putting in cuttings of *Begonia parviflora* and Chrysanthemums. Thinning autumn-sown Onions. Sticking Peas and putting Narcissi in pots just coming into flower under wall out-of-doors, in order to prolong their blooming.

April 19.—Potting Cockscombs, Tuberoses, and Victoria Ten-week Stocks. Sowing Scarlet Runners in rows 5 ft. apart, and more Mignonette out-of-doors; also Blue-branching Larkspurs, Celery out-of-doors, and some in a box placed in heat. Planting Dwarf Curled Borecole for seed, Carnations, Borage, and more Cauliflowers. Transplanting spring-sown Onions, to fill up gaps in main bed where plants have failed to come up. Pricking out seedling and double red Daisies. Putting in cuttings of *Achyranthes Lindenii*. Staking last potted French Beans. Earthing up Melons. Hoeing among Raspberry plantations. Stopping late Vines. Emptying and refilling winter Cucumber-pit. Putting Centaureas in cold frames, and Tuberoses in lean-to pit, and putting cases over two or three rows of Black Prince Strawberries that are coming into flower. Stopping shoots of bedding Calceolarias, and tying up more Lettuces.

April 20.—Potting *Lobelia Paxtoni*, *Nepetas*, and *Chamaepeuce diacantha*, shifting a few Palms into larger pots, and potting off *Celosias* and *Prince's Feather*. Re-blocking *Dendrobium Falconeri*, and basketing *Dendrobium Wardianum*. Sowing Sweet Peas in pots; also Mignonette, Vegetable Marrows, Malope, another frame of Early Horn Carrots, and a border of Paxton French Beans. Planting out forced Tulips and Lily of the Valley, second-sown Melons, and spring-sown Lettuces. Putting in cuttings of *Coleus*, *Ageratums*, *Salvias*, and *Gladiolus* into cold frames. Hoeing among spring-sown Onions. Pulling up and wheeling away Brussels Sprout stumps. Placing forced Roses under back wall, where they can be readily protected with mats in case of cold weather. Putting a little soil on Asparagus beds, and taking all French Beans from shelves in houses in case they should harbour red spider.

April 21.—Potting *Celosia pyramidalis*, *coccinea*, and *aurea*. Shaking out and re-potting large standard *Heliotropes*. Blocking *Dendrobium pulchellum* and *Oncidium bifolium*. Sowing Nonpareil and Champion of England Peas, Broad Beans, Spinach, and Walcheren Cauliflower. Planting Black Prince Strawberries, *Gladiolus*, *Dielytra*, and Sweet Briers. Pricking off Celery under glass protectors. Putting in Pink cuttings on hotbed. Thinning Carrots in frame; also early-sown Turnips. Raising Cauliflower protectors on bricks, staking Sweet Peas, and watering Cauliflowers under hand-glasses with manure water. Top-dressing Peach trees.

PEAS AND THEIR CULTURE.

The garden Pea and the field Pea are by some thought to be only varieties of the same species, the garden Pea being supposed to have, through long cultivation, departed farthest from the original type; but most people are of opinion that they are distinct. The field Pea has red flowers, and only one bloom on each flower-stalk; while the garden Pea has mostly white flowers, and produces two or three on each stalk; and these are the chief points of difference between them. Both are natives of the south of Europe, and have been cultivated there and in the East from very ancient times. The Pea is believed to have been introduced into this country about the Middle Ages; but Peas were not common as late as the time of Queen Elizabeth, for it is recorded that they were then imported from Holland, and were considered a scarce and expensive dainty. Since then the culture of the Pea has extended to every country where it can be grown successfully as a green vegetable, and there are possibly few of our common esculents that have such a wide geographical distribution, its culture extending from India even to the Arctic circle, or further. In no country has the culture and improvement of the garden Pea received more attention than in England, and we now possess many excellent varieties, though by far the greater number enumerated in catalogues are either comparatively worthless or are simply old sorts with new names. In Loudon's "Cyclopædia of Gardening," dated exactly fifty years back, we find the varieties then described as "numerous," and a list of two dozen of the best is given. Since then, perhaps, scores of varieties have come and gone, and at the present time some seedsmen's catalogues mention no fewer than 100 sorts. To say that twenty-five only of that number are really distinct or well worth growing is probably speaking well within the truth. Take an example:—One of our most trustworthy seed catalogues, speaking of the late trials of Peas, states that "nine-tenths of the new Peas, excepting of course Mr. Laxton's hybrids, are either the old British Queen or *Ne Plus Ultra*"—two of our best and oldest marrows, and which we have always grown for our main crop, and recommended often during the last dozen years or more. The above statement refers, however, only to late varieties; but the same might possibly be said of others. Comment is therefore needless on the subject of "new Peas," which the public buy at extravagant prices.

Culture, Soil, and Manure.

The Pea will succeed wherever ordinary vegetables thrive, but a calcareous soil suits it best; and when the soil is deficient in lime it must be added to it in some form or other, particularly if it contain much vegetable matter or humus, as mostly all old garden soils do. The ground should be deeply trenched and otherwise rendered permeable to the roots, for the Pea is a gross feeder, and the deeper its roots are encouraged to go, the less likely is it to be attacked by mildew, for a deep and open soil affords the most constant supply of moisture to the roots, and dryness is the chief cause of mildew. Of course, deep trenching is not absolutely necessary, though advisable; but the ground should at least be deeply dug, and the Pea in such a case should never follow any other very exhausting crop, if good or even fair returns be expected. Farmyard manure, rotten stable litter, old hotbed material, rotten leaves, decomposed vegetable refuse from the rubbish-heap, and such like, are all excellent manures for the Pea, and perhaps safer and preferable to artificial manures, which are uncertain in their effects. Good crops have been produced by guano in some cases, and in others the results have not been so satisfactory, the tendency of such stimulants being to produce rank growth and little crop. Any of the above manures may be applied in a rank state, provided they are dug deeply into the ground some months previously to sowing the seed; and I should always recommend manure to be dug in with the single spit in preference to trenching it and burying it out of reach for the time being; but very rotten manure may be dug in along with the crop.

Early Crops.

These are usually sown from November till March, and for the very earliest crop the seed is sown in small pots under glass, but not in strong heat, hardened off, and planted out

about the middle of March. Very little, if anything, is gained by sowing in November, but the first outdoor sowing should be got in by February at the latest. A warm corner or south border should be chosen for the early crops, and the rows should run north and south as a matter of course. The distance between the rows must be regulated by the height of the Peas. Those which grow 3 ft. or 4 ft. high should be allowed that distance at the least, and Spinach may be sown between them, and between the rows of the taller kinds Cauliflowers may be planted. In this way no space is lost, and the Peas are greatly benefited by the extra room and sunlight thus afforded them. For dwarf kinds I never allow less than 3 ft., and the tallest are allowed 9 ft. The drills may be about 3 in. deep, and if the seed be of fair quality, a pint should sow a row 40 ft. long at the very least, and seeds of rank-growing kinds should go considerably further. Early sowings should consist of first earlies, such as Carter's First Crop or Dillestone's Early; seconds, such as Daniel O'Rourke or Sangster's No. 1, which come in about ten days later, and are better bearers; and thirds, such as Laxton's Supreme, Auvergne, or Essex Rival. The last is a very prolific Pea, and otherwise good. It is not advisable to sow a greater variety than these, but rather a good breadth of each, in order to have something like good gatherings while each sort lasts.

Second Early Crops.

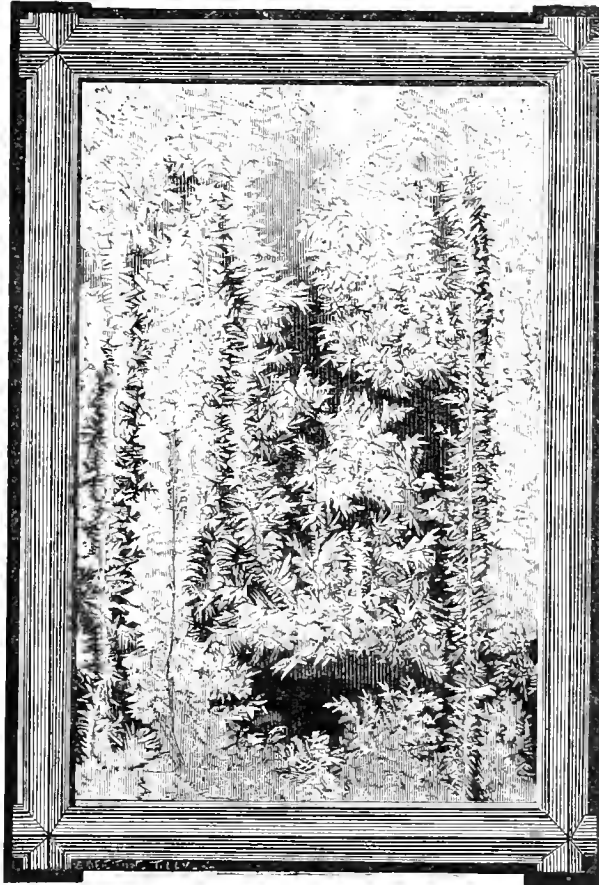
To succeed the above a sowing should be made at the same time in the open quarter, and the earliest rows of this batch should consist of third earlies, such as Laxton's Supreme and Essex Rival, for the very early kinds are worthless after these come in, and need not therefore be continued. The other rows may consist of Prizetaker, Laxton's Superlative, and Princess Royal, or any of the good second and third early round-seeded kinds. These sowings will carry the supply on till midsummer, and to succeed them another sowing must be made in a month or five weeks after, but not later than the beginning of March, and partly of the same varieties, with a few of the early marrows, such as Alpha and Advancer, and Veitch's Perfection. This brings us fairly into the marrows, and the next sowing should be made about the beginning of April, and should consist principally of good breadths of Veitch's Perfection, Ne Plus Ultra, and British Queen, which succeed each other, with a few of the later round-seeded sorts for common use; but for a supply from July till the end of October I have never had occasion to sow any but the three last named. They will grow and bear as late as any, and are far preferable to early sorts sown late. The last main sowing must be got in early in May, and another between that and the end of the month; this last will not "come in" in cold localities in ordinary seasons, but it should be tried for a chance crop in case a hot autumn should hurry the crops over sooner than usual.

Staking and General Culture.

Peas should always be staked before they produce tendrils; besides, the stakes afford them considerable shelter and

encourage growth. The rows should be slightly earthed up first, and if ordinary Pea-sticks be used, they should be as tall as the Peas are likely to grow. To save expense and trouble in making the stakes, I always use the best of last year's stakes for the early Peas; their bottoms being decayed, they are chopped off, and they are then just tall enough for the earlies and second earlies, which are mostly of a dwarf habit than late Peas. The lengths most needed are 3 ft., 5 ft., and 7 ft. Where sticks cannot be had conveniently, strong sheep nets stretched along each side of the row, and supported here and there by stout stakes, are an excellent substitute. As regards culture, except keeping the ground clean and stirred between the rows, the Pea wants little attention after staking. In dry seasons, a good thick mulching of rotten manure, litter, or short Grass spread along the rows on each side, and about 2 ft. out from the stakes, is highly advantageous, not only improving, as it does, the quality and abundance of the crop, but also prolonging it very considerably. Mulching reduces the necessity of watering very much, but water may be given whenever there is time to apply it; there is no danger of over-watering, for the Pea absorbs an enormous amount of moisture from the ground, which is usually dry in the vicinity of the row. In gathering, the most forward should be diligently sought for, as when the pods are allowed to get old, growth soon ceases and the supplies come to an end.

J. S.



Ice Flowers on Window.

ICE FLOWERS.

Who has not admired the fantastic floral devices that may often be seen on frozen glass through the crystallization of water during hard frost in winter? These are so interesting and beautiful that for some time past endeavours have been made to reproduce them in drawings, but the most exact likeness of them has been obtained by means of photography. This has been done by M. A. Martin-Flammarion, and the accompanying engraving, taken from his stereotype, proves how well he has succeeded. No great stretch of imagination would be required to believe them to represent a bouquet

of delicate flowers and Fern leaves, embroidered on a thin curtain of light and shade. A few years ago M. Haas succeeded in fixing these charming devices on glass in the following manner:—He exposed to the cold a horizontal sheet of glass slightly covered with water, on the top of which was put some enamel powder. The rime formed itself, and when the ice evaporated the floral representations were formed in enamel. Placing the glass thus prepared in an oven, the enamel, in melting, fixed in a durable and permanent manner the crystallizations.

Tree Planting in Algeria.—The railway companies of Algeria had, up to June 1, 1875, planted on the way from Algiers to Oran 14,400 fruit trees, 95,900 forest trees, and 341,000 trees of different species, on the open plains and slopes, making in round numbers 457,000 trees. Since then the number has been sextupled, the company estimating the number actually planted by it on the line as nearly 3,000,000.

VENTILATING FORCING-HOUSES.

THE possession of lax notions about ventilation or air-giving, as it is commonly termed, is often productive of unfortunate results. The presence of red spider, mildew, rust, scalding, &c., is mainly due to imperfect atmospheric conditions, of which defective ventilation is a primary cause. Inexperienced or young men are sometimes apt to think that those who insist upon the necessity of early air-giving and admitting it in very small quantities, gradually increasing it as the sun gains power, are unnecessarily fussy in their method of ventilation. It may seem to some who have not studied the subject practically that in ventilating forcing-houses early in the season, one might as well put on 6 in. as 2 in., and so save trouble. Now I consider that the true principle of ventilation as applied to forcing-houses of ordinary construction, is to admit air—when not absolutely frosty—as soon as the sun shines full upon the roof of the house in the morning by opening the roof ventilators an inch or so; this will prevent the deposition of moisture on the fruit and foliage by the increasing temperature, which, if rapidly evaporated by the admission of large volumes of cool air, tends to chill and check the young growth. This is generally the result when the houses are closed till eight o'clock or later in the morning, when the sun is shining brightly, and the lights are thrown open too widely, for the purpose of keeping down the rapidly rising thermometer. The conditions most favourable for healthy growth are a steady rise of temperature in proportion to the increasing light and warmth of the sun till the maximum is reached, and closing early, and forcing the inmates as much as possible when the air is pure and the light strong. Ventilation, to be perfect, must never be subject to rapid fluctuations. There are good cultivators who insist that air should be left on in forcing-houses all night, not only at the time the fruit is ripening or colouring, but at other times; but there is so much difference in the construction of glass houses, that what may be necessary in one case would lead to a waste of fuel in another. If all forcing-houses were air-tight, then in all cases some means of gradually changing the atmosphere in hothouses without greatly depressing the temperature would be necessary.

The best way of admitting night air early in the season is to pass it between or over the hot-water pipes. It is now nearly thirty years since I saw the first attempt made of changing the vitiated air in forcing-houses during the night, or at any other time when the lights could not be opened; only in those days we had flues instead of pipes. It will thus be seen that this is a very old subject, only its advocacy then was confined to a few. In the case I am referring to the air was admitted by an underground drain, and brought up inside the house near the warm flue, so that the current of air was warmed as it ascended and became mixed with the surrounding atmosphere. As regards the propriety of night ventilation it must not be forgotten that to a certain extent it is continually going on, especially in old-fashioned houses; indeed, in such houses on cold spring nights, an excess of the cold exterior atmosphere frequently gains admission through the open spaces between the squares of glass; therefore in arguing for or against night ventilation, it should be borne in mind that it is more a question of degree than of principle, as it is not likely that glass houses will ever be constructed air-tight. But in building glass-houses at the present period the tendency is to use larger panes of glass, with consequently fewer air spaces; therefore the state of things is somewhat different from what formerly existed. What seems to me to be really required is a fairly equable temperature, corresponding in some degree with, and to bear some proportion to, the fluctuations outside, at the same time to be kept in a constant state of circulation and renewal so far as can be effected without causing cold draughts or currents of air. Of course the heating apparatus will keep up the circulation, but it cannot change or renew the atmosphere. As the season advances and the sun gains power, the occupants of many houses would benefit by having the top ventilators opened an inch or so the last thing at night, as it is generally too much to expect any cultivator but the most enthusiastic to rise with the sun for the purpose of giving air. But every house should be considered separately, due allowance being made for its position, construction, &c.; and small

houses require more care and attention than large ones. This subject (night ventilation) is, I think, deserving of much consideration. I have before remarked it is not new, as I believe it has, to a certain extent, occupied the attention of cultivators since hot-houses for fruit or plant culture were first introduced. If it be right to assume that the leaves of plants are the lungs or organs of respiration, it will at once be seen how important it is that the conditions under which they are produced, should be such as will be suitable for ensuring healthy, substantial foliage; the whole question of fruitfulness must in the main hinge upon this. A damp, close atmosphere, especially when maintained at a very high temperature during night, is conducive to the production of soft, flabby growth and foliage that will always be liable to succumb to sudden gleams of bright sunshine, or to fall a prey to red spider or some other ailment before the season is half over. In conclusion, whatever ideas may be entertained by cultivators about air-giving generally, either during the day or night, there should, I think, be no difference of opinion about the advantages of early closing, and keeping the houses closed till the evening. The afternoon is the best and most natural period of the day for expediting forcing; even in the case of unheated houses—such as orchard-houses—early closing, securing the sun's bright warm rays, and at the same time saturating the atmosphere with moisture, have a most beneficial influence upon the size and quality of the fruit, in the evening admitting air through small openings at convenient intervals to prevent stagnation.

E. HOBDAY.

ACHIMENES GROWN IN BOXES.

HAVING last summer to furnish a number of greenhouse shelves on which pots were unsightly, the thought struck me that Achimenes in small, shallow boxes would answer the purpose—which they did—admirably. I found, too, that boxes had many advantages which pots or pans do not possess. They do not require half the amount of water, a great advantage; for when once Achimenes suffer from want of water, they get crippled for the season. Moreover, tying and staking are almost done away with, as the plants are grown in rows in the boxes, and all that is required is a stake at each end of the row and a piece of wire extending from one stake to the other pressed into a slit on the top of the stake. Each little plant should be tied to the wire when 6 in. high, which is all that will be required. Grown in this way they have been very much admired by all who have seen them—they were so robust, and every leaf and flower so perfect. I have been asked how I managed to support them without stakes, the wire just alluded to being quite hidden from view. Nevertheless, it keeps them in their place, and if too crowded when they grow up, all that is required is to press the stakes a little towards the edges of the box, when the whole row becomes opened up in a most satisfactory manner. This mode of growing Achimenes may not be new to some; but to all who are unacquainted with it I would say give it a trial, and I have no hesitation in asserting that they will ever afterwards give up growing them in pots or pans, except for special purposes. The following are the dimensions of the boxes which I use, and which are elegant, light, and durable. Their length is 16 in.; breadth, 8 in. at the top and 5 in. at the bottom; depth, 5 in. Half-inch white deal is quite strong enough, and when first made they should have two coats of paint and one every year afterwards, which will preserve them for a number of years. They are bottomed lengthwise, using two boards 2½ in. wide, which leaves 1 in. of space all the way along to provide for drainage. Thirty-two tubers are needed to furnish these boxes properly, that is, four lines consisting of eight tubers each. Grown in this way they are easily managed.

THOS. SPELMAN.

Forwardness of the Season.—Much has been written on this subject, but here the season is at least a month behind the usual time. My note book says, February 23, 1875, Cherry and Plum Trees in full bloom—while this season it was March 30th before they blossomed. The mildness of the winter made people believe that the season would be early, but the wet sodden state of the land has kept vegetation backward.—R. GILBERT, *Burghley*.

Gold-laced Polyanthuses.—I am surprised that "D." (see p. 184) finds any difficulty in procuring these. Three years ago I purchased a packet of Polyanthus seed, and amongst the plants raised from it were scores that produced gold-laced flowers of good form and substance—quite equal in these respects, indeed, to many collections which I have seen staged at South Kensington and other exhibitions. I have no doubt that if "D." were to obtain his seed from a respectable firm, as I did, he would meet with the same result.—JOHN G. T. COCKS, *Clapham Park*.

NOTES ON HARDY FLOWERS.

ASPERGERS.—No time should now be lost in getting these sown. So little seed was saved by the foreign raisers in 1876, that that saved in 1875 has to be mainly depended on; the crop will therefore be thin and the growth tardy, and the quicker the seed is sown the stronger will be the plants at planting-out time at the end of May.

ANNUALS.—Now is a good time to sow these. Many annuals are spoilt by being sown thickly on a hard, unbroken surface. If cultivators would only sow a great many of their annuals, at least the hardiest among them, in autumn to stand the winter, they would have them very much finer in spring and early summer than they are when sown in April and May. During the winter they root well into the soil; they make a good growth in spring, and come into bloom gradually, freely, and continuously. In early summer dry warm weather brings the plants into flower before they have made their growth, and they are soon over. Those who sow now should stir deeply, use some fine, rich soil, and press the whole firmly down. All strong-growing annuals, such as Nasturtiums, Sweet Peas, *Convolvulus major*, *Eschscholtzias*, Malope, Lupines, &c., cannot be expected to flourish unless they are growing in a rich holding soil.

ANRICALAS.—These are fast coming into bloom, and will need abundant supplies of water during dry weather. On no account should the plants be sprinkled overhead, or the water will damage the expanding flowers. We are keeping our plants somewhat close, but fully exposed to light, and they are making a fine growth and throwing up bold trusses. As pot plants the Alpine varieties are very beautiful, but in order to have the edging as pure and well defined as possible, they should be grown in poor soil.

PRIMULAS.—These are now very beautiful, especially such kinds as *P. nivea*, *P. ciliata intermedia*, *P. denticulata*, *P. pulcherrima*, *P. purpurea*, *P. amona* and its varieties, *P. marginata*, and others, and being on the whole easily cultivated, they should be grown by every one who is fond of hardy flowers. Those interested in Auriculas and Polyanthus should attend the exhibition of the National Auricula Society, which is to take place at the Crystal Palace, Sydenham, on April 24.

DOUBLE DAISIES.—These are now very attractive, and as there are several varieties in cultivation, an interesting collection may soon be formed. Such varieties as Early Gem, Blood Red, Common Red, Giant White, White Globe, Pink Queen, and Pink Beauty make a charming collection. Then it is a pleasing occupation to raise some from seed provided the latter be good. It should be sown now in a shallow box or bed in a cold frame, pricking out the young seedlings when large enough to handle, and in autumn finally planting them out in beds to bloom in spring.

HYACINTHS.—Those in pots are now going out of bloom, and many are puzzled to know what to do with them. My plan is to plant them out under the protection of a wall in an out-of-the-way place where they can remain for years. A good deep trench is dug, and the plants are turned out of their pots, and planted in it, pressing the soil firmly about them. From bulbs treated in this way, many a posy of fragrant blooms may be cut in early spring.

PANSIES.—Seedlings are now fast opening their flowers, and every day something new will be produced; the best should, therefore, be lifted and re-planted in prepared beds for summer decoration, and the inferior ones may be thrown away. I have planted some of the best-named varieties, both show and fancy kinds, out in beds, and they are growing freely. It is a good plan to peg the shoots firmly to the soil, in order to keep them from wind-waving. If any one wishes to have the rich-belted, white-yellow ground and self-coloured Pansies in full beauty, they should grow the plants in 1½ in. and 6 in. pots, in cold frames, and when coming into bloom, water them with liquid manure. This is how the fine Pansies seen at the exhibitions years ago used to be grown.

PYRETHRUMS AND RANUNCULUSES.—Double varieties of Pyrethrums, planted out to flower in beds or borders, will now need looking after, as slugs are apt to eat their young growths. Ranunculuses must now be encouraged to make all the growth possible, the bulbs having been planted late this spring, owing to the wetness of the season. Many fine Ranunculuses are lost through excessive moisture; therefore, it is well to cover the beds during the heavy rains early in spring, before growth commences.

TULIPS.—Beds of Tulips need all the light and air possible while the weather is mild. Choice Tulips are making generally strong growth—a sure precursor of fine bloom. At this time of year the great danger of Tulips is a sharp frost following a heavy rainfall. On this account growers of choice varieties keep a covering on their beds, which can be lifted so as to fully expose the beds, or dropped to cover them, as may be necessary. D.

Tomatoes in April.—Now that Tomatoes have become popular in our markets, growers have turned their attention to the production of this useful vegetable, not only as a summer outdoor crop, but also as an early spring crop under glass. Mr. Bennett, Rabley, has a large house planted with them, and they are now in full bloom, and if all go well, it is expected that they will be ripe towards the end of next month. The plants are growing in narrow beds on each side of a span-roofed house, and are trained up wooden laths placed 5 ft. or 6 ft. apart. By keeping the shoots tied closely to the laths they obstruct comparatively little light from such subjects as Ferns, Lycopods, &c., which are grown underneath them, and thus all available space in the house is occupied to the best advantage.—S.

Potato Shoots v. Sets.—While residing last year in Switzerland, I made the acquaintance of a horticulturist employed by the government as manager of nurseries, of public institutions, and lecturer in cantonal schools, and with his permission I beg to communicate the result of his last experiment respecting the Potato. Last spring he had arrived at the conclusion that the shoots or germs should be used as seed instead of the tuber. He therefore planted a field with Potato shoots, 2 in. to 7 in. long, leaving about 1 in. above ground, adhering in other respects to the old mode of cultivation. Though the season was very late, the operation taking place at the end of May, he not only had a fine crop, but, by its ripening earlier than if planted by the old method, he was able, I believe in July, to put in the same ground a second crop, which came to maturity and produced very fine tubers, which I saw. The shoots should be taken off at the eye and not broken or bruised. The Potatoes from which they are to be taken should be exposed to the air and some light; no germs should be taken off previously, second shoots being useless. They should be planted with a dibble, after ploughing or digging about the middle of May, when night frost are no longer to be feared. The planting requires no particular care beyond avoiding breaking them. The discoverer of this plan claims the following advantages for it:—1. It accelerates the growths allowing two crops to be taken from the same ground. 2. The Potato deprived of its shoots is still available as food, while the cost of seed is greatly reduced, Potatoes averaging above ten shoots, and one only being required for each plant.—GUSTAVE KÜSTER, in "Field."

QUESTIONS AND ANSWERS.

Double White Violets.—I should be grateful for advice as to the management of the double white Violet, which does not succeed well with me. There is ample promise of flowers, but the result is miserable abortions. I may add that the roots have been allowed to run together until they form quite a mat.—C. R.

Growing the Moccasin-flower.—I have several times tried to grow this so well drawn in THE GARDEN lately by Mrs. Duffield, among my hardy flowers and failed: unfortunately I have no peat, nor is there any near. Can you suggest any help, as I should like to establish such a noble hardy Orchid?—J. H. H. —[Plant at the foot of a north wall in a moist border, using much decomposed vegetable soil with the loam. If there be a little shelter from low bushes, &c., on each side all the better. If you have the opportunity, try it also in a moist spot among bushes. The foliage suffers from the dust and parched air too frequent near bare borders, wide gravel walks, &c. Strong and healthy roots should be secured.—V.]

Insects in Vineries.—I find the enclosed insects to be very troublesome in our Vineries. I have picked off sixteen from the lower leaves in a ten-light house in less than half-an-hour. They first appeared on the young fronds of *Adiantums*. My plan is to catch them and kill them. I find bunches of Moss to be good traps for them; they get into them when daylight appears. What is the name of this insect, and how can I best get rid of it?—SUBSCRIBER. [Its name is *Otiorthochus subvatus*—hard to pick, and look for the larvae in the soil in autumn and winter.]

Evergreen Oak Insects.—The leaves of our Evergreen Oaks are very much injured by the grub of some insect, which does its work in the same way as the Celery fly. Young healthy trees 6 ft. or 8 ft. high planted about five years ago are disfigured by it. It could of course be checked on a small scale in the same way as we do the Celery fly, i.e. by picking off the affected leaves or bruising the grubs in them, but to do that in the case of a number of trees would be rather a tedious task.—JOHN MATHERSON, *Addington, Windsor*. [The Evergreen Oak leaves, of which some were sent along with this communication, are ruined by the larva of a small moth named *Lithocolletis messaniella*: the perfect moth will appear in May. Common Oak leaves are ruined by another species of *Lithocolletis*—several species feed on them. Of course nothing can be done for them now, nor indeed is it easy to suggest any better plan of dealing with them than that mentioned by your correspondent.—A. M.]

Grass-destroying Grubs.—During the past week or two I have noticed great numbers of grubs on Primrose Hill. They seem to come out of the ground, and have totally destroyed the Grass on great patches of the hill. In many places the paths are covered with them, and they lie in handfuls in the gutters. I send you specimens collected this morning, and shall be glad if you can inform what they are, and whether there is any preventive for them, as they are like a plague in the district. I may add that last autumn I noticed vast numbers of the flies commonly called daddy long-legs about the same spots. Are these the producers of the grubs?—R. J. G. READ, 13, *Bernard Street, Royal's Park*. [The grubs sent are those of the dually long-legs; they are very destructive to lawns and Grass plots. Try watering the turf with a mixture of corrosive sublimate dissolved in muriatic acid in the proportion of 1 oz. to ½ pint of acid, and the addition of 80 gallons of water.—J. B.]

"This is an art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FLOWERS OF THE WESTERN PYRENEES.

THE sulphur-coloured variety of *Narcissus Bulbocodium* (see p. 246), mentioned as having been received from Mr. Barr, is the common form of the species in the Western Pyrenees. It is frequently met with both on the sandy coasts of the Bay of Biscay and on the hill-sides and slopes of the mountains, always occurring in little social groups or colonies, as is the manner of many *Narcissi*. The first place in which I found it was on the high sandy bluffs near the lighthouse of Biarritz, growing in beautiful co-partnership with *Lithospermum prostratum*, the sweet flowers of *Daphne Cneorum*, and the lilac *Ixia Bulbocodium*, with flowers as large as those of *Crocuses*, and abundant there. In form and in colour this foreground scene was one of matchless beauty. The distant landscape, too, was worthy of such a foreground: on the right was the Bay of Biscay, with the rocks of San Sebastian and the Spanish coast to the south; in front was the valley of the Adour with the old city of Bayonne, and behind that was the great chain of snowy Pyrenees stretching away to the extreme east. There is a wide extent of unenclosed common land in the neighbourhood of Biarritz, which is clothed with a vegetation of great interest and beauty. *Osmunda regalis* is the Fern of the district, and tangled with it grow *Erica mediterranea*, *ciliaris*, and *vagans*. *Cistus alyssoides* and other shrubby sorts may likewise be found here, and also many of the smaller genera of *Fumana* and *Helianthemum*. *Genista* and *Spartium*, and small leguminous shrubs, too, are beautifully represented. The whole of this open country is swept so severely by the winds of the Atlantic that no trees can attain any size. In order to see such plants as require shelter I should recommend a visit to be paid to the little French watering place called Cambo, which is ten or twelve miles from Biarritz, nestled amid the protecting shoulders of the Pyrenees. The country there is abundantly wooded, and affords a good example of the flora of the western Pyrenees; under the forest trees grow *Box* and *Mediterranean Heath*, and sheets of *Hepaticas* colour the hill-sides. They are singularly enough all white, or nearly so. Conditions of soil and climate seem to influence *Hepaticas* in a remarkable degree. In some places they are exclusively blue, in others I am told all red, while here they are invariably of a pale type, very large and fine, but never bright blue, which is the usual colour of the *Hepatica*. Growing parasitically on the roots of *Poplars*, which fringe the sides of streams, may be seen *Lathræa clandestina*, a remarkable plant which at once attracts attention on account of its large purple ringent flowers and thick masses of fleshy growth. Then there is *Helleborus thalictroides*, a plant of great delicacy and beautiful habit, so attractive that I wonder it is not more common than it is in English gardens. *Daffodils* are very numerous in the South of France, but they vary in form and size more than is common with us; they differ, and that greatly in the length and form of the tube, some being quite narrow and abruptly truncated, others scalloped, or broad, or fringed. This is so remarkable, especially among the crevices of the rocky hill above Bagnères de Bigorre, as to arrest the attention of the most indifferent observer. *Ranonda pyrenaica* is found in many of the side valleys; it grows to a size and beauty which our garden specimens do not approach; it seems to like to hang on the under sides of damp rocks, and the leaves in such situations measure fully 8 in. or 10 in. across, and are covered over with long woolly felt. Higher up, as one approaches the snowy ranges, *Saxifraga oppositifolia* attains a size and beauty which has induced English nurserymen to give it the rank of a separate variety; it is called *S. oppositifolia pyrenaica*. In size and colour of the flowers it is worth a journey to see. The foregoing remarks refer entirely to the Western Pyrenees, the Eastern or Mediterranean side of the chain have, I need scarcely say, a different climate, different conditions, and a different flora. J. D. LEWELYN.

NOTES OF THE WEEK.

GRAFTED CACTI.—At the meeting of the Royal Horticultural Society on the 18th inst., Mr. Croucher exhibited an interesting collection of grafted Cacti; among them were *Echinocacti* and silvery-spined *Mammillarias* grafted on stems of a *Cereus*, a few inches high, and thus situated they looked much better than when their bases are discoloured, as they usually are through contact with moist soil. One of the most singular examples was a small branched plant of *Pereskia aculeata*, on which had been grafted plants of *Cereus peruvianus monstrosus*, *Opuntia microdasys*, *O. clavarioides*, *O. ovata*, and also two species of *Rhipsalis*, namely, *R. funalis* and *R. paradoxa*. It is interesting to know that almost any of the large-growing species of *Cereus* may be studded with *Mammillarias*, small-growing *Opuntias*, Rat-tailed *Cereus*, or the pendulous Mistletoe-like *Rhipsalis*, and that thus treated they are much more interesting than when grown in the ordinary way.—B.

PITIOSPORUM UNULATUM.—We have examples of this in the conservatory and also out-of-doors, and it may be interesting to know that it is well worth growing in both positions, as its flowers, which are white, are as sweetly scented as those of the *Stephanotis* or *Orange blossom*. They are produced in clusters on the points of the shoots, and are useful in a cut state. The plants of it which we have under glass have been blooming since January, and those out-of-doors will be in flower in a few days. They grow freely in common garden soil, and beyond a little water now and then they need no attention, as they are not subject to insects or liable to disease of any kind.—A NORTHERN GARDENER.

MYRSIPHYLLUM ASPARAGOIDES.—This plant, which is a native of the Cape of Good Hope, though seldom well grown in English gardens, is nevertheless one of the most useful twining plants which we possess. It should be grown in an intermediate-house, and be allowed to twine up pieces of string or matting strained closely under the roof. In America it is extensively grown in this way and sold by the florists at so much per yard, string, foliage, and flowers all being cut together. It is used in bouquets and for festoons and vases, purposes for which it is admirably adapted, its bright glossy leaves and small, pearl-like, nodding flowers possessing both a light and elegant appearance. For twining round *épergues* and other flower-stands it will be found very useful, and both foliage and flowers last in a cut state for a considerable length of time. Several good plants of it may now be seen in the Pine-apple nursery grown in the way just described. They appear to grow rapidly and are now flowering freely.—S. C.

NEW LARGE-FLOWERED MIGNONETTE.—At the Horticultural Exhibition at South Kensington on Wednesday last, Messrs. Brookes & Gallop, of Western Road, Brighton, exhibited some remarkable examples of Miles' Hybrid Spiral Mignonette, a robust and floriferous variety, and certainly the largest-flowered form that I have yet seen, producing as it does erect, columnar spikes, 6 in. or more of which are covered with fully-expanded blossoms. As a vigorous, free-growing variety for ordinary decorative purposes or for market, this Mignonette should soon become popular, seeing that it is as fragrant as the older forms, and that it possesses a very distinctive appearance.—B.

BOUARDIAS AT CLAPTON.—A house in Messrs. Lew's nursery, containing many thousands of plants of *Bouvardia jasminiflora*, will soon be a sight worth seeing. Many of the blossoms have already expanded, and multitudes more are fast opening. These plants were struck from cuttings obtained when the last of the autumn-flowering plants were stopped; they were inserted in 3-in. pots, and when well rooted were shifted into 5 in. and 6 in. ones, in which they are allowed to flower. Their shoots were stopped four times during the autumn and winter, and plants treated in this manner become dwarf and bushy, and bear abundance of healthy bright green leaves and a profusion of fragrant blossoms that forcibly remind one of those of the white *Jasmine*.—C.

PUSCHKINIA SCILLOIDES.—For several years past three distinct plants bearing this name may have been met with in establishments in which bulbous and other hardy plants are grown, and probably some may have been in doubt as to which of them was the true *Puschkinia scilloides*. Specimens of the three plants in question have recently been sent to Kew for Mr. Baker's inspection, and his opinion is that the true *Puschkinia scilloides* is the smallest of the three usually met with under that name. The other two he believes to be *Puschkinia sicula*. To this decision some may take exception, inasmuch as although both of the plants in question produce similar *Allium*-like flowers, yet they appear to me to be distinct—at all events sufficiently so for horticultural purposes. One of these plants bears flowers on short pedicels in spikes, and has a broad marking of

blue down the centre of each petal, while the other has its flowers borne on long pedicels in an umbel, and has a distinct marking of green down each division of the flower.—T. S.

PERPETUAL CARNATIONS.—Throughout the winter two or three plants of perpetual-flowering Carnations have kept up a constant succession of bloom in boxes outside my windows, which have a southern exposure; they have not had the slightest protection. In the open border they generally rot off in winter, but the thorough drainage of the window-boxes suits them admirably.—SALMONICEPS.

DENDROBIUM CRASSINODE.—Several hundred plants of this beautiful Orchid, growing on wooden blocks suspended from the roof of one of the houses in the Clapton nursery, are now finely in flower. The blooms are large and well coloured, and the plants being hung in a row along the house, have an attractive appearance.—S.

AMARYLLIS BEAUTY OF REIGATE.—This is one of the most useful Amaryllises in cultivation, inasmuch as its rich crimson flowers, in addition to being very effective, are deliciously fragrant. In Messrs. Rollisson's nursery there are now plants of it bearing flower-spikes, each of which is surmounted by from six to ten fully expanded blossoms, and although not so large as the flowers of many other varieties, Beauty of Reigate well deserves a place in every collection.—S.

MASDEVALLIA VEITCHI AND LINDENI.—These are now flowering freely in Messrs. Veitch's nursery at Chelsea, and the blossoms, owing to their being subjected to more sunlight than they lately have been, are brighter in colour than they were a few weeks ago. The singular orange-scarlet flowers of the former are not less interesting, though, perhaps, less showy than the rosy-pink blossoms of the latter, but both rank amongst the best of the Masdevallias.—C. S.

ERIOSTEMON MYOPOROIDES HARDY IN THE ISLE OF WIGHT.—In Colonel Harcourt's garden at St. Clare, in this parish, there is a plant of *Eriostemon myoporoides*, which is just now beautifully in blossom. Mr. Meehan tells me that it has been quite hardy at St. Clare in the open ground for several years. It is so very pretty that it is worthy of a trial in other places besides this.—HENRY EWBANK, *St. John's, Ryde.*

CRIMSON-SCARLET DOUBLE-FLOWERED PEACH.—A plant of this brilliant variety of double-flowered Peach, growing in Mr. Parker's nursery at Tooting, is now finely in bloom and remarkably handsome. Either in shrubberies or in isolated positions on lawns such trees as this can scarcely be too largely planted, as, in addition to the fine display which the flowers make when on the plants, they are also strikingly effective when cut and associated with other flowers in vases for indoor decoration. They put one in mind of the richly-coloured blossoms of *Cydonia cardinalis*; but the latter are not so valuable in a cut state.—C.

MAGNOLIAS ROUND LONDON.—Owing to the mild season which we have experienced, Magnolias are everywhere unusually floriferous, and the few days' sun which we have lately had have been the means of inducing thousands of their—in some instances—deliciously scented blossoms to expand. Though not of great value in the market in a cut state at this season, owing to the immense quantities of other flowers now obtainable, if good plants of *Magnolia conspicua* could be grown in pots and brought on in a warm temperature, so as to be in bloom at Easter, when white flowers are in great demand, they would no doubt meet with a ready sale. In cool conservatories, too, such plants, when in blossom, would form striking objects.—W.

MARKET GARDEN PRODUCE.—The exhibition of this at South Kensington the other day having proved in all respects successful, it has been proposed to hold a similar exhibition at the same place at an early date, in order to afford market gardeners an opportunity of exhibiting what they grow. This may be desirable; but at the same time let us hope that good collections of imported vegetables and salad material as sent to our markets by the French and Channel Island growers will also be forthcoming, for the sake of contrast.

SALE OF EXHIBITION PLANTS.—Mr. J. Cypher's collection of exhibition, stove, and greenhouse plants was sold by Messrs. Protheroe & Morris, at Cheltenham, on the 11th and 12th inst., and, a large number of buyers being present, there was a brisk competition. Specimen *Azalea* realised from 7 guineas to 10 guineas each; *Hedera tulipifera*, 4½ ft. by 5 ft., realised 21 guineas; *Gleichenias* also sold well, a plant of *G. Mendelli* brought £21; and *Davallia Mooreana* fetched £6 15s. Amongst Palms, *Cocos Weddelliana* realised 19 guineas; *Pritchardia pacifica*, 16 guineas; *Croton Weismanni*, 8 guineas; a moderate-sized *Anthurium Scherzerianum majus*, 16 guineas; a plant of *Erica Cavendishi*, 7 guineas; and several other species realised 5 and 6 guineas each.

VINES UNDER BLUE GLASS.

SEEING in Dundee papers an account of some experiments that had been made with blue glass in Vineries, lately erected for Mr. Spence of that town, we wrote to Mr. Lawrie, of 16, Seafield Road, Dundee, under whose direction they have been conducted, and the following is his reply:—It is as yet premature to speak definitely as to the results likely to be arrived at as regards this experiment, for these reasons; first, because the Vines were only struck from eyes about a year ago; and secondly, out of the eight weeks since I commenced to force, we have only had a fortnight of sunshine, and from observations made, it is evident that the whole of the success lies in having an abundant supply of the blue sunray. In the first place I shall say a word or two about the Vines. We took two Vineries of equal size in every respect, filled them with the proper soil for Vine-growing, got good, healthy plants from Mr. Thomson, of Clovenfords, planted both houses the same day (January 13), pruned them and allowed them to settle in the soil till February 8, on which date they were watered and a gentle heat of 45° applied. As I have just stated the two houses are of equal size, and both have the same advantage as regards sun light, and the temperature of both strictly the same, the only difference between the two being that the one is furnished with strips of blue glass and the other is glazed with ordinary white glass only. Now for the results so far as the experiment has gone. At the end of the first four weeks, that is on March 8, the Vines had made 16 in. of growth under the blue, and only 4 in. under the white glass. On the 9th inst. the Vines under the blue glass measured 3 ft. 4 in., and under the white 2 ft. 4 in., the two being equal in strength, but showing that the absence of the sun had retarded the progress of those under the blue glass to a greater extent than it had done those under the white glass. All the plants, such as *Camellias* and *Fuchsias*, are vigorous and healthy, although some of them were rather sickly when the experiment was commenced. Wishing also to test the effect of blue light upon vegetables, we planted a few early Potatoes in each house. They were planted on the same date as the Vines, and without any other heat than the atmospheric heat of the houses, the result to-day (April 10) is six of the Potatoes from under the blue glass weighed 11 oz., and six from under the white weighed only 5 oz.

Double Daffodils.—How very inferior these and double Snow-drops are to the single forms! in fact they are almost ugly. In Ireland (I am only acquainted with the country lying north of Dublin) I have never seen the common single Daffodil, though I have seen *Narcissus minor* and *N. minimus*. Is it something in the soil that makes the bulbs throw up double flowers? It may be safely laid down in an æsthetic, if not in a horticultural sense, that no flower is improved by doubling; the elasticity of form is lost. Even in a horticultural aspect no flower gains by doubling (except what it gains in colour and perfume) save that double, and therefore barren flowers last longer. Who cares for a double Lily? Who would prolong the blooming of the exquisite Irises at the expense of doubling?—SALMONICEPS.

DEATH OF M. RIVIÈRE.—This well-known horticulturist, for many years chief gardener at the Luxembourg in Paris, died last Saturday evening. He was buried on Tuesday, followed to the grave by between 400 and 500 of the horticulturists of Paris. Mr. Rivière, who died comparatively young, was a most accomplished gardener, and well able to convey his knowledge to others. His lectures on fruit tree culture at the Luxembourg were numerously attended and very useful. For the past ten years he has been at work on a richly-illustrated book on fruit culture. The war and other causes have prevented its publication up to the present time; it is to be hoped his sons will issue the work, which is certain to be a valuable one. He was also for some time before his death at work on a book on Bamboo plants, which of late years have attracted much attention both in France and Algeria. He possessed much botanical as well as horticultural knowledge, and was particularly well acquainted with Orchid culture. He was the first to raise from seed hybrid Orchids in France. He was also the Director of the Jardin du Hamma in Algeria, of which his son is now the Sub-director. His collection of Bromeliads in the Luxembourg was one of the richest existing. His death before his work was done is a great loss to French horticulture. He was at all times most kind to others—most amiable to strangers. We cannot entertain a better wish for the future of our botanical and national gardens than that they may be directed by men as able and as good as Auguste Rivière.

Kalmias Best on the Margins of Lakes.—These are often met with in hot sunny situations, and in dry stony soils, where the roots cannot obtain sufficient moisture to keep the foliage from becoming browned by the sun. They succeed much better when planted by the sides of lakes or in similar moist positions where they also often receive partial shade. Both *K. myrtifolia* and *K. latifolia* may be safely planted in such situations, and neither rabbits nor hares will harm them. They thrive best in moist sandy loam.—S.

STATE OF VEGETATION IN MARCH.*

THE early part of March was favourable for gardening operations, being for the most part dry and cool, and without much of the wind for which March is proverbial. Towards the end, however, rain fell in abundance, and scarcely ceased during five consecutive days, viz., from the 23rd till the 28th. The month set in with a slight snow-fall, and frost has been prevalent throughout it; the temperature in general being rather below the average; vegetation is therefore backward. The genial weather which we had early in February brought it forward rapidly, but March left it nearly at a standstill. Many of the open-air plants reported to be in bloom in February have since fallen back, and although others have come into flower, few of them show that vigour which they generally do at this season. Early in February Hazels and Filberts were loaded with long, drooping, yellow catkins, which, however, got browned by frost about the end of that month and beginning of March; similar injury was also sustained by the drooping catkins of *Garrya elliptica*, while the Alder, particularly *Alnus cordifolia*, which was richly covered during the

month with its brownish-yellow catkins, did not suffer in the least, notwithstanding the frost to which they were exposed. Early *Rhododendron* blossoms, particularly those of *R. præcox*, *R. atrovirens*, and *R. dahuricum*, were all more or less injured; those of *Rhododendron Nebleanum* and other early, large-flowering hybrids, have been scarce this spring, owing to the buds not having been properly matured during the long, wet, sunless autumn which we had. The branches of *Thujas*, *Bietas*, and other allied Coniferous shrubs, are much browned, similar to what took place in April last year, and which resulted in the total destruction of some and the disfigurement of others. The leaves of many kinds of *Pinus* have also become very brown, such as those of *patula*, *densiflora*, *conserta*, *Fremontiana*, *Britia*, *muricata*, *tuberculata*, *Benthamiana*, as well as those on some specimens of *Laricio* and even the Scotch Fir. This result is evidently brought about by the long, moist autumn and winter which we have had, succeeded by a lengthened although not very severe frost, and afterwards followed by a few days of hot sun acting upon unripened wood. Early fruit tree blossoms on walls have also suffered from the frost; owing, however, to the rather unusual number of buds produced, a moderate quantity may yet be saved, although it is feared that the effects of the long, sunless, wet autumn will operate against a proper setting of the fruit. Many early spring bulbs, particularly those growing in low situations, have rotted in the ground, and even the printed tallies used for naming open-air plants have, in some cases, been rendered wholly illegible from excessive damp, a circumstance which has not occurred to the same extent at any former period. On the last day of February fifty species of plants were counted in flower in the rock garden; many of these have since suffered from frost. On March 31 seventy-five species and varieties were counted in bloom, the most conspicuous being *Andromeda florihunda*, *Bulbocodium vernum*, *Corydalis angustifolia*, *Dendia Epipactis*, *Draba aizoides* and *cuspidata*, *Epigaea repens*, *Erica carnea*, *E. carnea alba*, *E. hibernica alba*, *E. h. nana*, *Erythronium Nuttallianum*, *Gagea lutea*, *Helleborus ilicifolius*, *Hepatica angulosa*, the varieties of *H. triloba*, *Iris reticulata*, *Merendera caucasica*, *Omphalodes verna*, *Primula denticulata*, *marginata*, *Palinuri*, *purpurea*, and *viscosa*; *Saxifraga crassifolia*, *grandiflora*, and *bryoides*; *Scilla bifolia*, *S. b. alba*, *S. taurica*, *Sisyrinchium grandiflorum album*,

Narcissus nanus, and *N. pumilus*. During March, the thermometer was twenty times at or below the freezing point (indicating collectively 130°, while 98° were registered during the corresponding month last year), the lowest markings being on the mornings of the 1st, 4th, 19th, 20th, 21st, and 22nd, when 17°, 23°, 20°, 18°, 23°, and 24° were respectively indicated. The highest morning temperatures were on the 11th, 14th, 27th, 28th, 29th, and 31st, when 41°, 41°, 36°, 37°, 37°, and 42° were registered. Although 492° of frost have been recorded during the past five months, particularly in the neighbourhood of Edinburgh, it has never been at any one time of such intensity as to produce strong-bearing ice.

The scarcity of vegetables for spring planting, such as early Cabbages, Savoys, and Greens, is something quite unprecedented about Edinburgh, cart-loads being usually seen in our markets at this time. The drought which immediately followed the sowing last year prevented a healthy germination, and was afterwards followed by an unusually wet autumn, and that at a time when the plants were weak. To this, and the changeable weather experienced during winter, may be attributed their scarcity. Fortunate holders are receiving high prices for them. The scarcity seems to be general throughout Scotland, as few yet arrive by railway.



Rhus vernix.

Centaurea Clementei.—

This fine, silver-grey-leaved plant forms an excellent companion to the *Acanthuses*, the deep green of which helps to enhance the peculiar beauty of the *Centaurea*. Here they are both perfectly hardy, some fine clumps of them that have stood several winters being now in beautiful condition. I consider this *Centaurea* preferable to the *Artichecke*, which is sometimes recommended as an early, grey-leaved plant, as it is of better habit and retains its foliage throughout the season. We usually raise it annually from seed as small plants are those most serviceable for edging sub-tropical or other beds, and when too large for that purpose, they are transferred to shrubbery or woodland borders or planted out singly on Grass. The blossoms are best picked off, as they rather detract from than add to the beauty of the plant, the energies of which being then concentrated on leaf growth. This class of plants commends themselves strongly to amateurs with limited glass accommodation, as by a judicious admixture of

such plants, the requisite number of tender subjects for furnishing flower beds may be reduced to a minimum without loss as regards the general effect.—J. GROOM, *Henham*.

THE AILANTUS-LEAVED SUMACH.

(RHUS VERNIX).

ALL the species and varieties of Sumach are more or less graceful in habit; but that of which the annexed figure is a representation is one of the very best and most distinct for decorative purposes, and especially for planting in sheltered positions on lawns, on which it forms during the summer months an effective fine-foliaged shrub, its fresh green leaves rivalling in beauty even those of the *Ailantus* itself. It grows freely in almost any deep, well-enriched garden soil, and attains a height of from 3 ft. to 6 ft. Like many other species of *Rhus*, it may be increased by means of cuttings made of pieces of the roots inserted in a genial bottom-heat, and young plants obtained in this manner are preferable, inasmuch as their growth is much more rapid than that of older plants. This

* Read by Mr. J. M'Nab before the Botanical Society of Edinburgh, April 12, 1877.

Sumach is seldom seen in cultivation in this country, although it is an old Linnæan species, and one which is frequently seen in Parisian parks and gardens. Its synonyms are *R. vernicifolia*, *R. juglandifolia*, and *R. Wallichii*. B.

THE PLANT-LORE OF SHAKESPEARE.

(Continued from p. 298).

Cuckoo Buds and Flowers.

(1) *Song of Spring.*

When Daisies pied, and Violets blue,
And Lady-smocks all silver-white,
And Cuckoo-buds of yellow hue
Do paint the meadows with delight.

Love's Labour's Lost, act v., sc. 2.

(2) *Cornelia.*

He was met even now
As mad as the vexed sea—singing aloud;
Crown'd with rank Fumitory and farrow weeds,
With Burdocks, Hemlock, Nettles, Cuckoo-flowers,
Darnel, and all the idle weeds that grow
In our sustaining corn.

King Lear, act iv., sc. 4.

There is a difficulty in deciding what flower Shakespeare meant by Cuckoo-buds. We now always give the name to the Meadow Cress (*Cardamine pratensis*), but it cannot be that in either of these passages, because that flower is mentioned under its other name of Lady-smocks in the previous line (No. 1), nor is it "of yellow hue;" nor does it grow among Corn, as described in No. 2. Many plants have been suggested, but I think the Buttercup, as suggested by Dr. Prior, will best meet the requirements.

Currants.

Clown. What am I to bring for our shearing' feast? Three pounds of sugar, five pounds of Currants.

Winter's Tale, act iv., sc. 2.

These are the Currants of commerce, the fruit of the *Vitis Corinthiaca*, whence the fruit has derived its name of Corans, or Currants. The English Currants are of an entirely different family.

Cypress.

(1) *Suffolk.* Then sweetest shade, a grove of Cypress trees!

2nd Henry VI., act iii., sc. 2.

(2) *Clown.* In sad Cypress let me be laid.—*Twelfth Night*, act ii., sc. 1.

(3) *Amidius.* I am attended at the Cypress grove.

Coriolanus, act i., sc. 10.

(4) *Gremio.* In ivory coffers I have stuffed my crowns,
In Cypress chests my arras.

Taming of Shrew, act ii., sc. 1.

The Cypress (*Cupressus sempervirens*), originally a native of Mount Taurus, is found abundantly through all the south of Europe, and is said to derive its name from the Island of Cyprus. It was introduced into England many years before Shakespeare's time, but is always associated in the old authors with funerals and churchyards: so that Spenser calls it the "Cypress funeral." "In the Arundel MS. 42 may be found an alphabet of plants. . . . The author mentions his garden 'by Stebenhythe by syde London,' and relates that he brought a bough of Cypress with its Apples from Bristol 'into Est-britzlond,' fresh in September, to show that it might be propagated by slips."—"Promptorium parvulorum," app. 67). It is an ornamental evergreen, but stiff in its growth till it becomes of a good age; and for garden purposes the European plant is becoming replaced by the richer forms from Asia and North America, such as *C. Lawsoniana*, *macrocarpa*, *Lambertiana*, and others.

Daffodils.*

(1) *Autolycus.* When Daffodils begin to peer,

With heigh! the doxy o'er the dale,
Why, then comes in the sweet of the year.

Winter's Tale, act iv., sc. 3.

(2) *Perdita.*

Daffodils
That come before the swallow dares, and take
The winds of March with beauty.

Ibid., act iv., sc. 3.

* This account of the Daffodil, and the accounts of some other flowers, I have taken from a paper by myself on the common English names of plants read to the Bath Field Club in 1870, and afterward privately printed.—H. N. B.

Of all English plants there have been none in such constant favour as the Daffodil, whether known by its classical name of *Narcissus*, or by its more popular names of Daffodil, Daffadownilly, and Jonquil. The name of *Narcissus* it gets from being supposed to be the same as the plant so named by the Greeks first and the Romans afterwards. It is a question whether the plants are the same, and I believe most authors think they are not; but I have never been able to see very good reasons for their doubts. The name Jonquil comes corrupted through the French, from "juncifolius" or "rush-leaf," and is properly restricted to those species of the family which have rushy leaves. "Daffodil" is commonly said to be a corruption of *Asphodel*, with which plant it was confused (as it is in Lyte's "Herbal,") but Lady Wilkinson says very positively that "it is simply the old English word 'affodyle,' which signifies 'that which cometh early.'" "Daffadownilly," again is supposed to be but a playful corruption of "Daffodil," but Dr. Prior argues (and he is a very reliable authority) that it is, rather a corruption of "Saffron Lily." Daffadownilly is not used by Shakespeare, but it is used by his contemporaries, as by H. Constable, who died in 1604:—

Diaphenia, like the Daffadownilly,
White as the sun, fair as the Lily,
Heigh, ho! how I do love thee!

But however it derived its pretty names, it was the favourite flower of our ancestors as a garden flower, and especially as the flower for making garlands, a custom very much more common then than it is now. It was the favourite of all English poets from the time of Shakespeare to our own time. Shakespeare must have had a special affection for it, for in all his descriptions there is none prettier or more suggestive than *Perdita's* short but charming description of the Daffodil (No. 2). A small volume might be filled with the many poetical descriptions of this "delectable and sweet-smelling flower," but there are two especially which are almost classical, and which can never be omitted, and which will bear repetition, however well we know them. There are Herrick's well-known lines:—

Fair Daffodils, we weep to see
You haste away so soon,
As yet the early-rising sun
Has not attained his noon;
Stay, stay,
Until the hastening day
Has run
But to the even-song;
And having prayed together, we
Will go with you along.
We have short time to stay as you,
We have as short a spring,
As quick a growth to meet decay,
As you or anything.
We die,
As your hours do, and dry
Away,
Like to the summer's rain,
Or as the pearls of morning dew,
Ne'er to be found again.

And there are Keats' well-known and beautiful lines which bring down the praises of the Daffodil to our own day. He says:—

A thing of beauty is a joy for ever,
Its loveliness increases, it will never
Pass into nothingness. . . .
In spite of all
Some shape of beauty moves away the pale
From our dark spirits. Such the sun, the moon,
Trees old and young, sprouting a shady boon
For simple sheep; and such are Daffodils
With the green world they live in.

But it is time to come to prose. The Daffodil of Shakespeare is the wild Daffodil (*Narcissus Pseudo-Narcissus*) that is found in abundance in many parts of England. This is the true English Daffodil, and there is only one other species that is truly native—the *N. biflorus*, chiefly found in Devonshire. But long before Shakespeare's time a vast number had been introduced from different parts of Europe, so that Gerard was able to describe twenty-four different species, and had "them all and every of them in our London gardens in great abundance." The family, as at present arranged by Mr.

J. G. Baker, of the Kew Herbarium, consists of twenty-one species, with several sub-species and varieties; all of these should be grown. They are all, with the exception of the Algerian species, which almost defy cultivation in England, most easy of cultivation—"Magnâ curâ non indigent Narcissi." They only require after the first planting to be let alone, and then they will give us their graceful flowers in varied beauty from February to May. The first will usually be the grand *N. maximus*, which may be called the King of Daffodils, though some authors have given to it a still more illustrious name. The Rose of Sharon was the large yellow Narcissus, common in Palestine and the East generally, of which Mahomet said—"He that has two cakes of bread, let him sell one of them for some flower of the Narcissus, for bread is the food of the body, but Narcissus is the food of the soul." From the grand leaders of the tribe we shall be led through the Hoop-petticoats, the many-flowered Tazettas, and the sweet Jonquils, till we end the Narcissus season with the Poets' Narcissus, certainly one of the most graceful flowers that grows, and of a peculiar fragrance that no other flower has; so beautiful is it that even Dr. Forbes Watson's description of it is scarcely too glowing:—"In its general expression the Poets' Narcissus seems a type of maiden purity and beauty, yet warmed by a love-breathing fragrance; and yet what innocence in the large soft eye, which few can rival amongst the whole tribe of flowers. The narrow, yet vivid fringe of red, so clearly seen amidst the whiteness, suggests again the idea of purity, gushing passion—purity with a heart which can kindle into fire."

Daisies.

- (1) *Song of Spring.* When Daisies pied and Violets, &c.
Love's Labour Lost, act iii., sc. 2 (See Cuckoo-buds).
- (2) *Lucius.* Let us
Find out the prettiest Daisied plot we can,
And make him with our pikes and partizans
A grave. *Cymbeline*, act iv., sc. 2.
- (3) *Ophelia.* There's a Daisy. *Hamlet*, act iv., sc. 5.
- (4) *Queen.* Therewith fantastic garlands did she make
Of Crow-flowers, Nettles, Daisies, and Long Purples.
Hamlet, act iv., sc. 7.
- (5) Without the bed her other faire hand was
On the green coverlet, whose perfect white
Showed like an April Daisy on the Grass.
Rape of Lucrece.

The Daisy of Shakespeare is not such an illustrious flower as the Daisy of Chaucer. With Chaucer the love of the Daisy amounted almost to an idolatry. He celebrates it in many of his poems and at great length, but here I can only find room for these few lines.

Of all the flowers in the mede,
Then love I most those flowers white and redde,
Such that men callen Daisies in our town—
To them I have so great affection
As I said erst, when comen is the Maye
That in my bedde there dawneth me no daie,
That I n'am up and walking in the mede
To see this flowre against the sunnâ sprede,
When it upriseth early by the morrow,
That blessed sight softeneth all my sorrow, &c.

As a garden flower the Daisy is not to be despised. We have the double Daisies of many colours, and the curious Hen-and-Chickens, or Childing Daisy, and these were ornaments of gardens in Shakespeare's time also. They require good soil and frequent division to keep them in beauty. There are many interesting points connected with the history, poetry, and botany of the Daisy, which I do not mention here, but for which I may refer to my paper on the Daisy, read in January, 1874, to the Bath Field Club, and published the following month in THE GARDEN.

Damsons (see Plums).

Darnel.

- (1) *Cordelia.* Darnel and all the idle weeds that grow
In our sustaining corn.
King Lear, act iv., sc. 4. (See Cuckoo-flowers).
- (2) *Burgundy.* Her fallow lees,
The Darnel, Hemlock, and rank Fumitory
Dost root upon.
Henry V., act v., sc. 2.

Virgil, in his Fifth Eclogne, says:—

Grandia sæpe quibus mandavimus hordea solcis
Infelix lolium et steriles dominantur avenæ.

Thus translated by Thomas Newton, 1587—

Sometimes there sproutes abundant store
Of baggage, noisome weeds,
Burres, Breambles, Darnel, Cockle, Dawke,
Wild Oates, and choaking seedes.

And the same is repeated in the first Georgic, and in both places *lolium* is always translated Darnel, and so by common consent Darnel is identified with the *Lolium temulentum* or wild Rye-grass. But in Shakespeare's time Darnel, like Cockle (which see), was the general name for any hurtful weed. In the old translation of the Bible, the *Zizania*, which is now translated Tares, was translated Darnel, and Newton, writing in Shakespeare's time, says:—"Under the name of Cockle and Darnel is comprehended all vicious, noisom and unprofitable graine, encombring and hindring good corne." ("Herbal to the Bible"). The Darnel is not only injurious from choking the corn, but its seeds become mixed with the true Wheat, and so in Dorsetshire—and perhaps in other parts—it has the name of "Cheat" (Barnes' "Glossary"), from its false likeness to Wheat. It was this false likeness that got for it its bad character. "Darnell or Juray," says Lyte ("Herbal," 1578) "is a vitious graine that combereth or anyeth corne, especially Wheat, and in his knotten straw, blades, or leaves is like unto Wheate."

Dates.

- (1) *Clown.* I must have Saffron to colour my warden pies, Mace, Dates, none; that is out of my note.
Winter's Tale, act iv., sc. 2.
- (2) *Nurse.* They call for Dates and Quinces in the pastry.
Romeo and Juliet, act iv., sc. 4.
- (3) *Parolles.* Your Date is better in your pie and your porridge than in your check.
All's Well That Ends Well, act i., sc. 1.

The Date is the well-known fruit of the Date Palm (*Phoenix dactylifera*) the most northern of the Palms. The Date Palm grows over the whole of Southern Europe, North Africa, and South-eastern Asia; but it is not probable that Shakespeare ever saw the tree, though Lyte describes it, and Gerarde made many efforts to grow it; he tried to grow plants from the seed, "the which I have planted many times in my garden, and have grown to the height of three foot, but the first frost hath nipped them in such sort that they perished, notwithstanding mine industrie by covering them, or what else I could doe for their succour."

Dewberries.

Titania. Feed him with Apricocks and Dewberries.
Midsommer Night's Dream, act iii., sc. 1.

The Dewberry (*Rubus cæsius*) is a handsome fruit, very like the Blackberry, but coming earlier. It has a peculiar sub-acid flavour, which is much admired by some, as it must have been by Titania, who joins it with such fruits as Apricots, Grapes, Figs, and Mulberries. It may be readily distinguished from the Blackberry by the fruit being composed of a few larger drupes, and being covered with a glaucous bloom.

Docks.

- (1) *Burgundy.* And nothing teems
But hateful Docks, rough Thistles, Kecksies, Burs.
Henry V., act v., sc. 2.
- (2) *Antonio.* He'd sow it with Nettle seed,
Sebastian. Or Docks, or Mallows.
Tempest, act ii., sc. 1.

The Dock may be dismissed without further note or comment

Ebony.

- (1) *King.* The Ebon-coloured ink.
Love's Labour Lost, act i., sc. 1.
- (2) *King.* By heaven, thy love is black as Ebony.
Biron. Is Ebony like her? O wood divine!
A wife of such wood were felicity.
Ibid., act iv., sc. 3.
- (3) *Clown.* The clearstores towards the south north are as lustrous as
Ebony.
Twelfth Night, act iv., sc. 2.
- (4) *Pistol.* Rouse up revenge from Ebon dew.
2nd Henry IV., act ii., sc. 4.

The Ebony as a tree was unknown in England in the time of Shakespeare. The wood was introduced, and was the typical emblem of darkness. The timber is the produce of more than one species, but comes chiefly from *Diospyros Ebenum*, *Ebenaster*, *melanoxyton*, *Mabola*, &c. (Lindley), all natives of the East.

Eglantine.

- (1) *Oboron*. I know a bank whereon the wild Thyme blows,
Where Oxlips and the nodding Violet grows;
Quite over-canopied with lush Woodbine,
With sweet Musk-Roses, and with Eglantine.
Midsummer Night's Dream, act ii., sc. 1.
- (2) *Arrivagus*. Thou shalt not lack
The flower that's like thy face, pale Primrose; nor
The azure Harebell, like thy veins; no, nor
The leaf of Eglantine, whom not to shander,
Out-sweetened not thy breath.
Cymbeline, act iv., sc. 2.

If Shakespeare had only written these two passages they would sufficiently have told of his love for simple flowers. None but a dear lover of such flowers could have written these lines. There can be no doubt that the Eglantine in his time was the Sweet Brier. Gerarde so calls it, but makes some confusion—which it is not easy to explain—by saying that the flowers are white, whereas the flowers of the true Sweet Brier are pink. In the earlier poets the name seems to have been given to any wild Rose, and Milton certainly did not consider the Eglantine and the Sweet Brier to be identical. He says (L'Allegro):—

Through the Sweet Briar or the Vine,
Or the twisted Eglantine.

But Milton's knowledge of flowers was very limited. Herrick has some pretty lines on the flower, in which it seems most probable that he was referring to the Sweet Brier:—

From this bleeding hand of mine
Take this sprig of Eglantine,
Which, though sweet unto your smell,
Yet the fretful Briar will tell,
He who plucks the sweets shall prove
Many thorns to be in love.

It was thus the emblem of pleasure mixed with pain, and so its names pronounced it to be, it was either the Sweet Brier, or it was Eglantine, the thorny plant (Fr: *aignentier*). There was also an older name for the plant, of which I can give no explanation. It was called *Bedagar*. "*Bedagar dicitur gallici aignentier*."—John de Garlande. It is a native of Britain, but not very common, being chiefly confined to the South of England. I have found it on Maidenhead Thicket. As a garden plant it is desirable for the extremely delicate scent of its leaves, but the flower is not equal to others of the family. There is, however, a double-flowered variety which is handsome. The fruit is large, and of a deep red colour, and is said to be sometimes made into a preserve. In modern times this is seldom done, but it may have been common in Shakespeare's time, for Gerarde says quaintly—"The fruit when it is ripe maketh most pleasant meats and banqueting dishes, as tarts and such like, the making whereof I commit to the cunning cooke, and teeth to eat them in the rich man's mouth." Eglantine has a further interest in being one of the many thorny trees from which the sacred crown of thorns was supposed to be made—"And afterwards he was led into a garden of Cayphas, and there he was crowned with Eglantine."—Sir John Mandeville.

Elder.

- (1) *Arrivagus*. And let the stinking Elder, grief, entwine
His perishing root with the increasing Vine.
Cymbeline, act iv., sc. 2.
- (2) *Hostess*. What says my Esculapius? my Galen? my heart of
Elder?
Merry Wives, act ii., sc. 3.
- (3) *Saturninus*. Look for thy reward
Among the Nettles at the Elder tree,
This is the pit and this the Elder tree.
Titus Andronicus, act ii., sc. 4.
- (4) *Williams*. That's a perilous shot out of an Elder gun, that a poor
and private displeasure can do against a monarch.
Henry V., act iv., sc. 1.

- (5) *Holofernes*. Begin, sir, you are my Elder.
Biron. Well followed: Judas was hanged on an Elder.
Love's Labour Lost, act v., sc. 2.

There is, perhaps no tree round which so much of contradictory folk-lore has gathered as the Elder tree. With many it was simply "the shaking Elder," of which nothing but evil could be spoken. *Biron* (No. 5) only spoke the common mediæval notion that "Judas was hanged on an Elder;" and so firm was this belief that Sir John Mandeville was shown the identical tree at Jerusalem, "and faste by is zit, the Tree of Eldre that Judas henge him self npon, for despeyr that he hadde, when he solde and betrayed oure Lord." This was enough to give the tree a bad fame, which other things helped to confirm—the evil smell of its leaves, the heavy narcotic smell of its flowers, its hard and heartless wood, and the ugly drooping black fungis that is almost exclusively found on it, though it occurs also on the Elm, which was vulgarly called the Ear of Judas (*Hirneola auricula Judæ*). This was the bad character; but, on the other hand, there were many who could tell of its many virtues, so that in 1655 appeared a book entirely devoted to its praises. This was "the Anatomie of the Elder, translated from the Latin of Dr. Martin Blockwich by C. de Iryngio" (*i. e.*, Christ Irvine), a book that, in its Latin and English form, went through several editions. And this favourable estimate of the tree is very common in several parts of the Continent. In the south of Germany it is believed to drive away evil spirits, and the name "Holderstock" (Elder Stock) is a term of endearment given by a lover to his beloved, and is connected with Hulda, the old goddess of love, to whom the Elder tree was considered sacred. In Denmark and Norway it is held in like esteem, and in the Tyrol an "Elder bush, trained into the form of a cross, is planted on the new-made grave, and if it blossoms the soul of the person lying beneath it is happy." Nor must we pass by the high value that was placed on the wood both by the Jews and Greeks. It was the wood chiefly used for musical instruments, so that the name sambuke was applied to several very different instruments, from the fact that they were all made of Elder wood. The "sackbut," "dulcimer," and "pipe," of Daniel iii. are all connected together in this manner.

As a garden plant the common Elder is not admissible, though it forms a striking ornament in the wild hedgerows and copses, while its flowers yield the highly perfumed Elder-flower water, and its fruits give the Elder wine; but the tree runs into many varieties, several of which are very ornamental, the leaves being often very finely divided and jagged, and variegated both with golden and silver blotches. There is a handsome species from Canada (*Sambucus canadensis*) which is worth growing in shrubberies, as it produces its pure white flowers late in autumn.

Elm.

- (1) *Adriana*. Thou art an Elm, my husband, I a Vine,
Whose weakness, married to thy stronger state,
Makes me with thy strength to communicate.
Comedy of Errors, act ii., sc. 2.
- (2) *Titania*. The female Ivy so
Earrings the barky fingers of the Elm.
Midsummer Night's Dream, act iv., sc. 1.
- (3) *Poins*. Answer, thou dead Elm, answer!
2nd Henry IV., act ii., sc. 4.

Though Vineyards were more common in England in the sixteenth century than now, yet I can nowhere find that the Vines were ever trained, in the Italian fashion, to Elms or Poplars. Yet Shakespeare does not stand alone in thus speaking of the Elm in its connection with the Vine. Spenser speaks of "the Vine-prop Elme," and Milton—

"They led the Vine
To wed her Elm: she sponsed, about him twines
Her marriageable arms, and with her brings
Her dower, the adopted clusters, to adorn
His barren leaves.

But I should think that Shakespeare never saw a Vine trained to an Elm; he was simply copying from the classical writers.

H. N. ELLACOMBE.

(To be continued).

A REFLEXED SNOWDROP.

(*GALANTHUS Plicatus reflexus*).

THE variety here figured, although undoubtedly closely allied to the Crimean Snowdrop, may be readily distinguished by its outer petals being turned back like those of Cyclamens, Dodecatheons, and one or two species of Narcissus. Either Haworth or Herbert (I forget at the moment which) describes a *Galanthus reflexus*, but that appears to be a narrow-petalled, pallid, or yellowish-green marked form of the common Snowdrop, and, although named *G. reflexus*, the Rev. Harpur Crewe, who has lately re-discovered this variety (see THE GARDEN, p. 226), states that the outer petals droop as in the normal species. The plant we now figure bloomed in Mr. Barr's collection at Tooting during the first week in April, some time after a bed of *G. plicatus* had ceased flowering, but this difference in the season of blooming may possibly be due to late planting. About thirty flowers were expanded at the time when our sketch was made, all showing, without a single exception, the reflexed character very distinctly, and some unexpanded buds which were plucked from the plants at the same time expanded and assumed the same reflexed character indoors. B.



Galanthus plicatus reflexus.

THE FRUIT GARDEN.

VINE BORDERS.

THERE are few matters connected with horticulture of greater importance than the growth of the Vine; as to the merits of inside or outside borders, like most other matters of detail in the treatment of any important plant that will succeed under different conditions, there is certain to be different opinions. There is no doubt but that a great deal more assistance than the roots of Vines usually receive may be given to them when wholly confined to inside borders, and that when their every want is fully attended to at the exact time they require it, they may be kept going for a longer period with a greater amount of success than generally results from their roots being entirely outside the walls of the house in which they are grown. Yet those who advocate inside borders alone, even for early forcing, appear to ignore the fact that with the best possible treatment the Vines never attain half the strength, possess the lasting properties, or give general results equal to those that have their roots both inside and outside, where both alike receive the treatment they need. There is no doubt that if Grape-growers throughout the country were consulted as to the practicability of keeping the roots in quantity, and in an active condition in both the inside and outside borders for a lengthened period, the majority would say that it could not be done; that if egress were permitted, those growing inside, if even placed there at the time of planting, would make their escape outside, or in a few years cease to make any progress: I am willing to admit that if the actual condition of the roots of the greater portion of Vines that have been so placed in inside and outside borders were conclusive evidence that such opinions are correct, it might be taken as a true verdict. But I maintain that such is not the case; the unerring natural law of self-preservation is as fully illustrated in vegetable as it is in animal life, and when the roots of Vines thus make their way from the inside to the outside borders, they are following Nature's laws in making their escape from the defective treatment they receive inside. There

is no doubt there are many Grape-growers who can afford to make, and who carry out the idea of making, their Vines the whole and only consideration in the houses devoted to their growth; but if we take the country collectively, I submit that the treatment generally given to Vine roots in inside borders is the worst feature in the whole routine of garden practice, and this in nineteen cases out of twenty, through causes over which the cultivators have little or no control.

This state of things has been much aggravated since the summer bedding system has been carried to the extent which it has now reached, for it too generally causes

Lily Bulbs.—"Dunedin's" chief complaint (see p. 293) is that I did not make my sketches to suit his description (see p. 260). This, however, I never attempt to do in any case. I still maintain that my sketch (see p. 268) is correct in all essential particulars. If "Dunedin" be on the golden side of the shield, he should not be too severe upon me if I see only the silvery reverse. As to the statement that I have "made the 'seed-bud' (see p. 268) to sit in the very bosom of a scale double the size of the original," is only part of the truth, seeing that the whole sketch, scale, bud, root-stock, and growing stem, are all enlarged two diameters for the sake of clearness, and if anyone will look carefully at my sketch, they will see that the bud is in no way "attached to that scale," as "Dunedin" states, but is in reality—due allowance being made for perspective—as near the young stem on the right as it is to its attendant scale on the left. Again, "Dunedin" should remember that his specimen was a dried and shrivelled one, and the fact that so good an authority as the "Author of the Notes on Lilies" (see p. 268) was unable either to deny or accept "Dunedin's" statements as facts, shows how vague his own description of his "seed-bud" theory must be, even to experienced Lily growers, and all such with whom I have conversed on the subject have been unable to grasp "Dunedin's" meaning in this matter. This being so, it seems to me highly desirable that—as suggested by the "Author of the Notes on Lilies," and in these pages (see p. 294)—"Dunedin" should settle the point conclusively by exhibiting before the Scientific Committee of the Royal Horticultural Society at South Kensington, or elsewhere, illustrative sections or other preparations of such Lily bulbs as will shew his meaning in a clear and unmistakable manner, and, until that is done, I cannot enter farther into this discussion. F. W. B.

the inside space to be covered as thickly as possible with boxes and pots of bedding plants, both in early, mid-season, and late Vineries. The greater number of gardeners who occupy middle-sized places are obliged to resort to this, and it often happens in the largest establishments that the bedding so outgrows the accommodation essentially devoted to it that the Vineries have to be called into requisition. Then there are shelves of Strawberries in pots, shelves of pots, and boxes of French Beans, rows of pots filled with early Potatoes, and other things of a similar nature, the water from which is daily and hourly oozing through on to the border, rendering its upper surface sour and unsuited to the roots of any plant, and often leading to the impression that it is moist enough all the way through, when frequently it is as dry as a board beneath the immediate surface. The necessity for the inside borders being thus crowded with other plants is no visionary matter, as I can testify, having too often had no other available resource but to subject inside borders to this treatment. All this is bad enough, but there is yet another and a more fatal cause through which Vine roots in inside borders suffer, that is, the unnatural drying process to which they are yearly subjected, wherein the soil, from the surface down to the drainage, is intentionally allowed to become as dry as dust. For Vines that are forced very early all through the summer up to autumn, with a view to prevent their breaking prematurely, the soil is kept in a condition that precludes the possibility of the roots more than barely existing; with midseason crops a similar drying process begins with the berries commencing to colour, and is kept up for a considerable time through the hottest part of summer, when the foliage is green and healthy and the roots taxed to their utmost to supply the loss by evaporation, but which those inside are totally unable to do. In late Vineries, where the Grapes are required to hang long, the drying process commences with the first signs of ripening in August or the beginning of September, and is continued to the end of the year, or as long as there is a bunch hanging; but it is totally unnecessary to submit inside Vine borders to this extreme drying process, as the end in view can be accomplished without it.

Despite all that is said as to the inability to keep the roots of Vines that occupy both inside and outside borders in a plentiful and active condition, I am well acquainted with many instances in different parts of the kingdom, where, in the case of those that have been planted thirty or forty years, or even more, they are now, and always have been in equally good condition both inside and out. I may mention one place in particular with which I have more than an ordinary acquaintance. At Cloughton Hall, in Lancashire, is a range of four moderately large Vineries; there were five, but the Vines have been removed from one, it being converted into a plant-house; two of these were planted by my grandfather some eighty years ago, the others a few years previously; they are wide houses (the inside borders occupying the whole space), and the front walls are arched. So long as I can recollect there has been nothing to indicate the limits of the outside border, but I believe it is of more than the usual dimensions; next the houses is a border filled with bedding plants in summer, then a broad gravel walk; on the opposite side another flower border, and beyond this the vegetable quarters of the kitchen garden. I can speak for the last forty-five years, that there has been no renewal of the outside border, or anything beyond a yearly dressing of manure given to the plants grown upon it, neither has anything been done to the inside border, excepting 12 in. or 15 in. of good soil added to the top. So long as I was connected with the place the roots were always more plentiful inside than out. Recently I received a letter from Mr. Walsh, the present gardener, who describes them as being in just the same condition now, more roots being inside than out. The Vines are a mixed lot, have never been renewed, and have from one to four or five rods each, and I do not suppose that there are any in the kingdom that have all through the long course of their existence up to the present time continued to produce heavier crops of thoroughly well-finished fruit. I saw them last summer, and as one stood at the end of each house the bunches literally appeared to touch each other; the Hamburgs especially were well swelled and as black as jet, many of the

bunches running from 2 lb. to 2½ lb. each, the whole being considerably larger than very old Vines often carry. The causes of their continued fertility and the active condition of the inside roots are not far to seek; there were never many plants tolerated in the houses; next, the inside border has never been subjected to the injurious drying process; and last, but not least, there is a pond of several acres in extent on a higher level some few hundred yards distant, from which comes a continuous supply of water into cisterns in the houses, and which water has been used in the quantities which the roots of healthy Vines require, to the deficiency in which, even during the season of active growth when water is given, is attributable more than to all other causes, the evils under which Vines suffer. So far from it being an impossibility to keep the roots of Vines in healthy working order in inside borders when they have access to outside as well, even more may be done.

In a large establishment last year I saw several houses where the Vines had been planted from thirty to forty years in outside borders alone, and which were as full of active roots as could be desired. Within the last few years inside borders have been made, and the Vines have been induced to root inside, and from my own observation I can testify they are literally teeming with active fibres. These Vines were bearing an abundant crop of very large bunches of fruit, exceedingly well finished, and they carried everything before them at one of the best fruit shows in the kingdom. I could go on multiplying instances of old Vines, whose roots occupying both outside and inside borders are equally in good condition in both, but it is simply unnecessary: in cases of this kind that which is done in a few places may be accomplished in an indefinite number, if similar means be employed. Inside borders alone may do for those who are willing to incur the expense and delay in re-planting from time to time, but the Vine is a strong, free-growing plant that every year makes a great deal of wood and leaf in a very short time, if it have the requisite support; and the simple fault of inside borders alone, however well made in the first instance, and well managed afterwards, is the insufficiency of growing space that they afford the roots. The great advantage with inside borders, as well as out, when the former receive all the necessary attention, is that they render the crop, at whatever season it ripens, in a great measure independent of the weather outside. Were I to have my choice, I should prefer the roots in an outside border exclusively to inside alone, even for early forcing; and for early forcing I would never use fermenting materials on such outside borders, having long since been convinced by experience that, even when used in no greater quantities than to cause the roots to move simultaneously with the shoot development, it is not only useless but injurious. A covering with any non-conducting material early in the autumn, to keep in the accumulated sun-heat of summer, and to ward off rain and frost, is sufficient, as is every year clearly proved by many of the best Grape-growers in the kingdom, especially some of those who grow for market, and whose living is dependent on their success, and who do not often make mistakes.

T. BAINES.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Spice Pippin Apple—This variety is but little known, except in the eastern parts of Essex, and adjoining parishes of Suffolk. It is, however, an excellent Apple, which with care will keep till May. The tree blooms very late, and generally escapes spring frosts. It is a great bearer, and scarcely ever fails to produce a crop, even when nearly all others fail.—B. R. CANT, *St. John's Street Nursery, Colchester.*

Pear Blossom—I cannot remember a season in which Pear blossom has been so fine, regular, and abundant as it is at present on trees of all shapes and in all situations. Although the buds were exceptionally prominent at the beginning of the year, they may now be termed late in opening. The cold and wetness of the ground and the absence of sun-heat have had a most marked effect on Pears as well as on other vegetation.—J. G., *Henham.*

Early and Late Pruning and its Results.—Having read with much interest the articles on early and late pruning of hardy fruit trees by Mr. Fish (see p. 151), and Mr. Baines, (see p. 272), allow me to state that I have a dozen pyramidal Pear trees planted on either side of a gravel walk. I have this year tried the plan of pruning one side in the middle of December, and the other side in the middle of February. The trees are planted one of a sort on each side of the walk in pairs, and there is not the slightest difference in the appearance of the bloom at this time. I also had occasion to remove one of the pyramids to another part of the garden; and that, too, is in exactly the same state as the companion tree, which was not moved. This seems to fully confirm Mr. Baines' view on the subject.—A HEAVY LAND GARDENER, *Cambridgeshire.*

HARDY FLOWERS IN LONDON GARDENS.

DAFFODILS, Squills, Grape Hyacinths, and other early-flowering bulbous plants may still be seen in great beauty in London gardens. *Anemone pulsatilla* and *A. Gloire de Nancy*, too, are now producing an abundance of large blue and purple blossoms; *A. nemorosa bracteata* is just opening its white flowers, and the small sky-blue blossoms of *A. blanda* may still be found on plants that have been blooming nearly all the winter. *Muscari botryoides Szovitzianum* is also in good bloom, its flowers being large and of a rich dark blue colour; the dwarf *Iris pumila*, growing in a bed in Messrs. Rollisson's nursery, is thickly studded with deep violet-coloured blossoms;

Musk-scented Heron's-bill (*Erodium moschatum*).

for edgings or for planting in clumps on rockwork this is one of the best of the small Irises, and one which deserves to be more commonly met with in such positions than it is, as, in addition to its attractiveness when in flower in spring, strong plants of it frequently furnish a second crop of blossoms in the autumn. *Saxifraga crassifolia* still bears abundance of large trusses of rosy-pink flowers, and the early Forget-me-not (*Myosotis dissitiflora*) and *Pulmonaria sibirica* are equally well in bloom; *Ornithogalum splendens*, too, is now flowering freely, and its blossoms being pure white, it is much more effective than the greenish-white *O. nutans*, which may also now be seen everywhere in abundance. *Doronicum austriacum*

Palmate-leaved *Dentaria*
(*D. palmata*).Double-flowered Cuckoo-flower
(*Cardamine pratensis fl.-pl.*).

in some places is now remarkably showy, each plant bearing from twenty to thirty large bright yellow flowers; *Aubrietia purpurea grandiflora* is also at present a mass of bloom; this variety of *Aubrietia* is a desirable plant for edgings or masses; its flowers are larger than those of the common kind and brighter in colour. To the above may be added *Ranunculus amplexicaulis* and *Triteleias*, the latter finely in bloom. Early Tulips are opening fast, and will soon be very attractive. S.

Broad-leaved Groundsel (*Senecio saracenicus*).—This grows wild in moist situations in some parts of the west of England, where it attains a height of from 4 ft. to 5 ft. It is a showy plant, and one which is suitable for planting on the margins of ponds or streams in semi-wild places, where it spreads rapidly, and when associated with the Willow Herb (*Epilobium angustifolium*) a beautiful contrast is the result, the habit of growth and colour of the flowers of each being so distinct and effective.—G. B.

THE LIBRARY.

HARDY PLANTS FOR LITTLE FRONT GARDENS.

THIS little shilling volume consisting of 120 pages, is devoted to cultural and other matters, relating to the growth of hardy flowers in small gardens. It is written in a popular and interesting style, and will doubtless prove of service to artizans and others, who possess little forecourt gardens in or near large towns. The following extract relating to the construction of rockwork will give some idea of the kind of information which is to be found in this handbook.

A tasteful rockery is never obtusive or fantastical, never stands out like a candlestick in the middle of a flat bed. Of all vulgarities in gardening, none exceeds that of an ugly rockery. Anything like an imitation of logan rock or ruin, anything requiring cement to keep the stones in place is in the worst possible taste. Flint stones are very ugly. If used at all, they must be used modestly, and almost entirely be covered by creeping plants. Sandstone, granites, and pebbles contrast admirably with vegetation, and arranged in a natural manner, as if they were at home, are always pleasing. Rockwork should seem to come out of the ground, and not to be made to order and set down where it is to stand. On a small scale, it should never be high, except where it leans against a wall. Rough stones, always excepting flints and clinkers, make a pretty border for central bed or green plot. These stones should not be too high, but allow some lovely dwarf edging plant to rest on them and peep out between. This kind of edging also agrees well with the rockwork, which perhaps fills the corners of the garden, so that the whole of the little domain looks of a piece. But beware of too many white stones not sufficiently covered by green! Of all things, avoid a whitewashy appearance. It is a common fault in seaside gardens, and very painful to the eyes.

One piece of information is, however, withheld which should have had a place in this little work. Quotations are given from Ruskin's "Modern Painters," Darwin's "Climbing Plants," &c. but we fail to find any mention of the cost of, or best ways of obtaining plants, seeds, soils, implements, &c., all matters which we know from experience to be of vital importance to the class for whom the book is professedly written.

AGRICULTURAL TEXT BOOK.*

THE literature of the farm does not as a rule come within our province; the present work, however, is an exception, inasmuch as much of the information which it contains is of especial value to all cultivators of the soil, whether farmers or gardeners. Among the contents of this handy little two-shilling volume are well-written essays on the origin, formation, distribution, physical properties, and chemical composition of soils, together with remarks on drainage, culture or tillage, and the application of manures. The chapters on the latter should be read by every gardener, as should also the remarks on rotation and the relative influence of different crops on the soil in which they are grown. Not the least useful part of this little hand-book are the chemical and statistical tables, cost of labour, manures, &c. In this latter respect we must own that farmers are ahead of gardeners, who nearly always ignore statistics; and we could now refer to many papers on gardening in which the plants or improvements recommended could only be procured, or carried out at a cost of two or three hundred pounds, yet not a word is said about cost, to many the all-important matter. We cordially recommend this little work to the attention of all interested in the "reason why," in reference to soils, manures, drainage, and rotation of crops.—B.

Pearson's Plan of Glazing.—Messrs. Foster & Pearson, Beeston, Notts, say (see p. 264) that glazing with curved glass was introduced about ten years ago by the late Mr. J. R. Pearson. I have, however, two houses here, a Vinery and a Peach-house, erected about fifty years ago, which are glazed on the same plan, and as regards the action of frost, there is no difference between these and houses glazed with glass cut evenly across.—A NORTHERN GARDENER.

* "Hardy Plants for Little Front Gardens," by S. Stackhouse.
London: Frederick Warne & Co.

† "Agricultural Text Book," by John Wrightson, F.C.S. London & Glasgow: William Collins, Sons, & Company.

EFFECTS OF CHECKED GROWTH ON AURICULAS.

A FEW days ago I had an opportunity of inspecting the fine collection of Auriculas grown by the Rev. F. D. Horner, Kirkby Malzeard, Ripon. His plants are now in a lean-to house on a south aspect, with level stages back and front, and a pathway between them. All the best are on the front stage, and all are in excellent condition. During the prevalence of cold, frosty weather, they have had at night the advantage of artificial heat; there being a brick flue in the house, a little fire is put in when requisite. The Auricula—meaning thereby the fine choice varieties—is practically a greenhouse plant at this season of the year, and is much assisted by warmth when judiciously applied. The weather is generally changeable early in spring, and the evil effects of checked growth are well known to cultivators, and need to be guarded against. The visible symptoms of a check are hardy and defective growth, a gradual blanching of the leaves, and a dulness of the ground colour of the blossoms, with a sere and yellow edge. Such a check in growth affects the roots also; there is a deficiency of action arising from something akin to root paralysis, and as a check from cold is sometimes the source of these evil results, it indicates that the cultivated Auricula is not so hardy as is generally supposed. Hence, therefore, the advantage of greenhouse treatment in February or March, when the energies of the plants are put forth to produce leaves and blossoms. When in a dormant state, the Auricula will withstand the effects of frost with comparative immunity; the autumnal growth of leaves has become hardy and of a thick substance; but it is different with the young growth and the rising flower-stem; they appear to partake of a tenderness that demands protection. The cold north-east winds of spring need to be guarded against, or they strike the plants with a chill, and the buds remain in suspense and do not expand. The roots, owing partly to their being underground, are not stimulated into action so soon as the foliage is, consequently the latter, by its attempts at growth without due support from the roots, exhausts itself and injures the health of the plants, and any check given to the foliage during growth is communicated immediately to the roots. I confess that I was a little surprised at the warm temperature which the Rev. Mr. Horner was giving his Auriculas during the cold weather of the week commencing March 19, but the condition of his plants fully justified the treatment. The late Rev. George Jeans once wrote:—"The Auricula in its high state of artificial cultivation, and removed from its protecting snows and grown in pots, whereby its roots are brought to the very focus of opposite external influences, is little more than a half-hardy plant. Wherever anything looks amiss above the soil, except it be rot or canker, I believe that a sluggish and unhealthy root action, or no action at all, will be found below, and one of the surest means of inducing that state is the permitting of the foliage to receive a check from frost or from cold, and drying winds during growth." Such cautions as those contained in the foregoing remarks are all the more necessary because there is abundant evidence that the ranks of Auricula cultivators are being recruited by those desirous of attempting the growth of this fascinating flower. D.

Nicotiana macrophylla gigantea as a Winter-blooming Plant.—Last year I was very successful in blooming this plant in the greenhouse, and really handsome it was. The house in which it bloomed is kept at a minimum temperature of 40°, rising with sun-heat, but rarely being above 50° in the winter. The seeds of this Tobacco were sown in heat in March in order to supply plants for outdoor decoration, and when large enough, they were potted off into 3-in. pots. About the end of April they were shifted into 10-in. pots and placed in a cold frame; in June they were set out-of-doors, where they threw up bloom-spikes about the end of September. Some time in October they were taken into the house, and in November the blooms began to expand. When the first spike had nearly done blooming, it was removed, and laterals formed, which flowered freely, in some cases producing heads of bloom 1 ft. and 1½ ft. across. The pink blooms of this Tobacco are very attractive, and the foliage, being of a pleasing shade of green, renders the plant effective during the dull season of the year, and to those having small houses only, very useful. The soil which I used consisted of about equal parts of leaf-soil and fibrous loam, a little sand being added to keep it open; the drainage, too, was ample.—W. J. MAY.

Preventing Snails from Eating Young Melon and Cucumber Plants.—When Melons and Cucumbers are planted out in a young, tender state in spare beds, they are very liable to be eaten and rendered useless by snails. I have seen many healthy young plants destroyed in this way in one night. In planting I now always lay a ring of powdered lime a few inches from the neck of each plant, and this forms an effectual barrier to the progress of the snails.—A NORTHERN GARDENER.

PLATE LXX.

EDRAIANTHUS AND ITS CONGENERS.

(WITH A COLOURED FIGURE OF E. PUMILIO).

Drawn by H. NOEL HUMPHREYS.

EDRAIANTHUS Pumilio is so much like a true Campanula that it is not easy to discover any distinctive characters; indeed, by turns it has borne the names Campanula, Wahlenbergia, and Edraianthus Pumilio. From the first genus as now usually limited, it is excluded on account of the seed-vessel splitting open on the top between the calyx lobes, instead of in lateral clefts. In Bentham and Hooker's "Genera Plantarum" Edraianthus is made a section of the large chiefly (South African) genus Wahlenbergia. The genus Wahlenbergia, even in this extended sense is almost unknown in gardens, and consists mainly of comparatively small-flowered, not particularly ornamental plants. The section Edraianthus comprises about half-a-dozen species, inhabiting the mountains of South-eastern Europe and Asia Minor. They all have the tufted habit and narrow leaves of E. Pumilio, but this is the smallest of the series. It is a native of the mountains of Dalmatia, growing in the fissures of rocks. In habit it closely resembles *Silene acaulis*, the wild specimens being only 2 in. to 3 in. high, including the flowers. The shining foliage is hairy and of a silvery grey hue. The accompanying figure will give an idea of the beauty of this species when in full bloom. Concerning its cultivation, it should be borne in mind that it is in the true sense of the word a rock plant, and requires an open situation such as that which it occupies in Messrs. Backhouse's nursery at York, from a specimen growing in which the annexed plate was prepared.

Judging from dried specimens alone the other species of this section must be equally attractive. *E. tenuifolius* and *graminifolius*, natives of Greece, Bosnia, &c., grow from 3 in. to 6 in. or more high, and have narrow, Grass-like leaves, chiefly radical, and flowers nearly double the size of those of *E. Pumilio*. *E. serpyllifolius* is scarcely larger than the present species, and has, as the name indicates, Thyme-like foliage; it is also at home in Dalmatia. *E. Kitaibeli*, a native of Bosnia, about 6 in. high, and having proportionately larger flowers, differs from all the others in having appendages in the sinuses of the calyx-lobes, like some of the true Campanulas.

In conclusion, a few words respecting one or two other species of Wahlenbergia of a totally different habit. First of all, the incomparably beautiful little *W. hederacea*, or Ivy-leaved Bellflower, a native of peaty bogs and humid spots, chiefly in the south and west of England, northward to York and the Clyde, in Scotland. Beyond Britain it has a wide range, chiefly in the coast regions, from Denmark and Ireland to Spain and Dalmatia. Without being a showy plant, it is certainly one of the gems of our indigenous vegetation, and should be included in every garden where there are facilities for cultivating bog plants—not that it is absolutely a bog plant, but it is difficult otherwise to give it suitable conditions. Although a native plant, it is not so common as to be familiar to those who do not explore our woods and wilds, to enjoy the scanty remnants of Nature left in this country; and therefore a short description of specimens lying before me collected in St. Leonards Forest, Sussex, may be acceptable. It is a perennial with trailing, slender, thread-like stems, branching repeatedly, and attaining 1 ft. or more in length when luxuriant, and delicate, membranous, angularly-lobed, Ivy-like leaves about ½ in. in diameter, and borne upon slender stalks, the lower of which are nearly 1 in. long, getting gradually shorter towards the tips of the branches. The pale blue flowers are less than ½ in. long, and are borne on exceedingly slender stalks about 1 in. long. At first they are pendent, gradually becoming erect, and after the corolla has withered and the seed-vessel enlarged and become too heavy for the slender stalk to support erect, it droops. Another species of this genus, *W. lobelioides*, was introduced from Madeira into English gardens in 1777, but it is now rarely grown, being more curious than beautiful. It is an erect, slender annual from 6 in. to 2 ft. high, according to the soil, with small, terminal, pink or white flowers less than ¼ in. in diameter, and remarkable in having usually only three instead of five



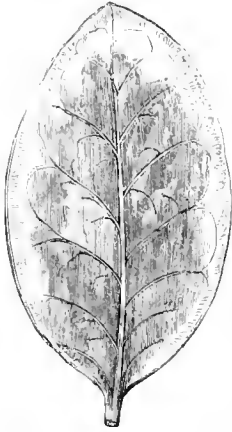
SILVERY HAIRBELL (EDRAIANTHUS PUMILIO-D. C.)

lobes to the corolla. On account of their singularity, the shrubby species found in the islands of St. Helena and Juan Fernandez deserve notice.

W. B. HEMSLEY.

THE SCOTCH GOLDEN-EDGED HOLLY.

THIS is a new form of Holly, with a singularly vivid and striking variegation. It has an irregular golden margin bordering a centre of rich shining green, and the effect is singularly bright and pretty.



This Holly is in the possession of the Lawson Seed Company, and will be sent out by them. It was originally raised in the Comeley Bank Nursery, Edinburgh.

Gold-laced Polyanthuses.—I am much obliged by Mr. Cocks' communication (see p. 303), but I am afraid that he has scarcely comprehended my desire. It is to obtain a collection of the fine old-named Gold-laced Polyanthuses that were so popular twenty-five and thirty years ago. I have raised seedlings for years past, and have a few that are of great promise, but a real good one, perfect in all parts, is one in five thousand. Since I wrote I have, however, been enabled to enrich my collection by the addition of George the Fourth, William the Fourth, Formosa, Telegraph, Exile, and one or two others. On strong plants Lancer is now very fine indeed, and when one compares a bloom of it with the best productions of the seedling bed, they realize what is wanted in the seedlings. I am yet in want of Lord Lincoln, King Fisher, Alexander, Beauty of England, Princess Royal, King, Highland Mary, Duke of Northumberland, and Royal Sovereign, and if any one can assist me to the possession of plants of these varieties, I shall be very grateful.—A. D.

Bedding Violas.—The spring, in spite of a comparatively mild winter, has not induced the Pansy tribe to bloom early, a circumstance probably owing to the excessive rainfall which we have had rendering the soil moist and cold. In the south the chief value of bedding Violas depends upon their blooming early, and the earliest among the early is that beautiful Viola called White Swan, which is a valuable spring bedding kind. Amongst the blue section the new Royal Blue, a seedling from Blue Bell, occupies the first place, for it is not only the earliest, but its flowers are literally the bluest of any Viola in cultivation. It has a dense, close habit, and blooms most profusely. In Yellow Boy, a greatly improved variety of *V. lutea grandiflora*, we have incomparably the earliest of the yellow kinds, and it is a first-rate spring bedder. The dwarf lilacina, which is mauve-coloured, flowers abundantly, whilst the pretty primrose-coloured Corisande is the earliest of that particular hue.—A.

The Best Lilac for Forcing.—At a recent meeting of the Central Horticultural Society of France, M. Duchartre adverted to his experiments made some years ago on the Foschi Lilac. The learned professor then showed—and his results have been abundantly confirmed since—that by forcing a Lilac in a well-lit forcing-house at an average temperature of 59° Fahr., perfectly white flowers were produced. In one of his experiments one branch of a Lilac was allowed to escape into the open air through a hole in the glass, while the rest of the shrub was within the forcing-house. Under these conditions the forced flowers were white, as above, but those which were on the branch exposed to the open air expanded a fortnight later, and were of the ordinary lilac colour.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Glass Structures.—Amateurs, whose glass accommodation is limited, are often tempted to grow a greater variety of plants than can receive proper treatment in the space allotted to them; there is also frequently a disposition to form collections of a certain species of plant. In neither case is there so much pleasure derivable as in a selection sufficiently restricted to admit of all the plants having sufficient room to attain their full development and exhibit their true character, besides which the general health and appearance of the plants when overcrowded can never possibly be at their best while their blooming capabilities are considerably diminished. The most desirable course is to make a selection of those subjects that are naturally free growers, handsome in appearance, last a considerable time in flower, and will answer well for cutting. The above remarks collectively apply even more to stove subjects than to such as succeed under cooler treatment, as the former, from their more rapid growth and the usually limited space for their cultivation, are more likely to get overcrowded. It is now time to commence propagating the various plants usually grown for winter flowering, and in the selection of these it is well for amateurs to bear in mind the above hints, and to confine themselves to the most useful varieties. Amongst the most indispensable of winter-bloomers, either as decorative plants in the stove, or for their remaining fresh for a long time in a cut state, are Poinsettias; the new double variety, in all probability, will ultimately be grown to the exclusion of the old single form, and those who possess a plant of it should lose no time in increasing it. Last season's growth should not be shortened; simply place the plants in the warmest available situation, keeping the soil slightly moist, which will cause the top eyes to break; when these are 6 in. long take each off with a heel of the old wood, and insert them singly in sandy soil in small pots, and cover with a bell-glass. If cuttings of Poinsettia be not made with a heel of the old wood attached, as above recommended, but are simply severed at a joint, as is customary with cuttings of most plants, many of them will rot, on account of the succulent nature of the shoots. When the leading eyes of last summer's growth have thus made shoots and been taken off, the lower ones will break and can be similarly treated until all have pushed down to the base, which most probably they will not accomplish before midsummer, the last struck plants coming successively into flower late in the winter. In propagating the old varieties of Poinsettia, both red and white, adopt the same course, but where the stock is plentiful they will most likely furnish a sufficient number of shoots at once; ability to flower in succession in their case can be secured by subsequent treatment. The equally indispensable and more elegant *Euphorbia jacquiniæflora* must be propagated in the same way by cuttings with a heel or a bit of the old wood attached, otherwise the greater portion of them will fail to root. They may be either struck singly in small pots or inserted eight or ten round the sides of 6-in. pots and potted off singly when struck. The red-flowered *Sericographis Ghiesbreghtii* is one of the best winter plants we possess, striking freely from cuttings of the young wood treated in the ordinary way; like the two preceding subjects, it does not require a great amount of space for growth, 8-in. or 9-in. pots being large enough for it. The flowers of the beautiful rose-coloured *Plumbago rosea* have a charming effect in the winter when remaining on the plant, but as they do not keep fresh so long when cut as some subjects, it is not advisable, where space is limited, to grow many of them. Cuttings made from the young wood, put in now, grown on through the summer near the glass, and stopped at times to make them branch out, will become fine blooming specimens by the autumn. Blue flowers in the winter are scarce, and there are few of this colour from which to make a selection. *Eranthemum pulchellum* is very useful and one of the best; it is easily grown, and blooms profusely from the points of every shoot, however small; plants that have flowered during the winter will at the present time have a number of young shoots on them 3 in. or 4 in. in length: treat similarly to the last-named. *Aphelandra cristata* is another plant that remains a considerable time in flower; it is very handsome, and will bloom in either a large or small state; it forms stout, short, erect growth, the plant requiring little or no support; it will have made young shoots from just below where the heads of flower were produced in autumn, and these will now be in condition for making into cuttings; they thrive best singly in small pots. This *Aphelandra* will last for many years, and can be kept within moderate limits, as it will bear cutting back each season to within a joint or two of where it has been headed down the year previous; plants of it will flower freely in the autumn, if those that have bloomed be so treated now, kept in the stove until they have broken into fresh growth, then turned out of the pots, two-thirds of the old soil removed, replacing them in the same or larger ones, according to the required size of the plants, and kept on in heat through the

summer. The comparatively new *A. Roezli* is a pretty, free-flowering plant, blooming in a 4-in. or 5-in. pot; when not more than from 4 in. to 6 in. high, through the winter and spring, it is very effective when grown three or four together in 6-in. pots. Now is the time to strike cuttings, keeping them in the stove through the summer; they require no further attention except a sufficiency of light, air, and water; they succeed best in turfy loam and a little sand. The above plants are deserving of a place in the most select company, and are in every way suitable for amateurs, as their flowers contrast well with any others. For autumn flowering, *Salvia gessneriflora* and *S. fulgens* are two most useful plants easily grown; cuttings put in now will root in a fortnight, when they can be moved singly into 3-in. pots, the points pinched out two or three times during the summer, giving root-room as they require it. There is one advantage attending all the foregoing subjects, viz., that where space is limited they will bloom well the following autumn and winter from spring-struck cuttings, consequently, after flowering all can be discarded, except just a sufficient number from which to obtain cuttings.

Solanums.—The berry-bearing *Solanum capsicastrum* and *S. pseudo-capsicum* have a very much better appearance when grown in the open ground and transferred to pots in the autumn than when grown all through the summer under glass, as outside they assume a much closer habit, and the foliage becomes more dense and better in colour than it can be had in pots, even with the best attention. Under pot culture if ever the plants be allowed to suffer from want of water the leaves always turn to a yellow, sickly colour; besides there is invariably a difficulty in keeping down red spider; under open ground cultivation it is essential to plant them out early if their berries be required in a ripe state early in the autumn. *Solanums* are much hardier than they are generally supposed to be; 10° or 12° of frost will not seriously injure them. Plants that have been used through the winter should be cut back, reducing them to one-third their size, turned out of the pots (removing most of the soil without breaking the roots more than can be avoided), and at once planted 18 in. apart in a sheltered situation fully exposed to the sun. If the soil be not of a loose, open nature, it must be made so by the addition of sand or vegetable mould of some kind, for if the material in which they are grown be of an adhesive character, when they are taken up for potting the roots will get broken to an extent that will seriously injure them. Young plants of these *Solanums* struck from cuttings or raised from seeds some weeks back may be planted out in a similar manner, but previously they must be sufficiently hardened off.

Bedding plants.—See that the stock of each kind of bedding plant required is sufficient to cover possible losses. Such as *Heliotropes*, *Ageratum*, *Lobelia*, and *Verbenas*, that root and grow quickly, may yet be struck. The tops of the first-struck plants will make excellent cuttings. *Pelargoniums* should now be moved out of the greenhouse into cold frames, giving those that are of sufficient size plenty of air from morning till night to harden them off; such as are small should be encouraged to make growth by keeping them closer, especially by shutting down the lights early in the afternoons. The tri-coloured bedding varieties will be better for being kept moderately warm until the end of the month. *Humea elegans*, *Wigandia*, *Chamaepeuce*, and *Cannas*, should not be kept in too small pots until planting-out time, or they become weakened, the bottom leaves suffering, which spoils their effect for the summer. *Alternantheras*, *Iresines*, *Coleus*, and *Amarantus*, must be kept for some time yet in a warm growing temperature. Pot off *Dahlia*s as they are struck, and put in more cuttings; these later growths, which are somewhat weaker, generally strike more freely than the strong, sappy shoots first produced.

Kitchen Garden.—Make further sowings of Peas and Broad Beans as soon as those last put in are fairly aboveground. From the cold, wet condition of the ground this spring many of the early-sown vegetables make such slow progress that it is necessary to defer successive sowings a little longer than usual, otherwise the crops will be ready for use too near together. Sow a little Turnip seed, as also the main crop of Carrots; these should, if possible, occupy ground that is of a light, open nature, and, like all deeply-rooted plants, should have it dug to a good depth, and it ought to be tolerably rich land that has been heavily manured last year and had grown Caniflowers, Lettuce, or Celery, it being better not to apply fresh manure directly to the Carrot crop, as it tends to cause their cankering: sow thinly in rows 12 in. or 15 in. apart. Where Beet is held in estimation, and is required as early as obtainable, a little may now be sown, but it is better to defer putting in the principal crop until somewhat later, for should a dry summer ensue, it will have a disposition to run to seed. Where Seakale is grown from seeds sow at once in rich, open soil; it will succeed better in such

than where it is heavy and adhesive; if the ground be well manured and the plants kept free from weeds through the summer, they will make good crops for forcing next winter. Pat the seeds in from four to six together in patches 15 in. apart in the rows, having the rows a similar distance asunder. When the plants are up thin out to one in each place.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

April 23.—Potting off *Cyclamens*, *Lantanas*, *Globe Amaranthus*, the last of the *Dahlia*s, and stove cuttings; also potting seedling *Centaureas*, *Vegetable Marrows*, *Cucumbers*, and *Melons*. Sowing *White Cape* and *Miller's Late Broccoli*, and *Paxton's French Beans*. Planting *Violets* and *Lettuces* from frames, and pricking off herbaceous *Calceolarias*, *Ice-plants*, and *Sweet Basil*. Putting in cuttings of *Alternantheras*; also another batch of *Pinks*. Preparing frame for pricking out *Celery*. Earthing-up *Melons*, and top-dressing *Peach trees* in houses. Thinning *Grapes*. Syringing *Apple trees* in orchard with alum-water to kill blight. Putting strings over *Peas* to keep off birds. Taking lights off bedding plants on all favorable opportunities. Tying down *Vine shoots*, and keeping *Muscats* in flower at 70° at night and not giving air by day until 95°.

April 24.—Putting *Lilacs*, large *Balsams*, *Coleus*, and *Epacris*, into larger pots. Sowing *Indian Pinks* and *Mignonette* in the flower borders; also *Dianthus Heddewegi*, *Centaurea Cyanus*, and *Aubrietia purpurea* and *græca*. Planting spring-sown *Caniflowers* between *Asparagus beds*, and *Lettuces* on *Celery ridges*. Making a new bed of *Keen's Seedling Strawberries* with plants that had been forced. Moving all *Dahlia*s out of heat. Emptying and re-filling vases on terraces with fresh soil. Stopping fruit tree shoots in orchard-house. Syringing *Peach trees* on walls out-of-doors with a mixture of *Tobacco-water* in order to keep down green and black fly. Digging up and removing *Winter Greens* as fast as they become useless.

April 25.—Potting off *Verbenas* in 3-in. pots, and placing them in warm frames. Shifting *Melianthus* into larger pots, also *Gnaphalium* and *Capsicum*. Sowing another batch of *Primulas* and *Balsams*; also *Brussels Sprouts*, *Curled Greens*, *Cottagers' Kale*, *Buda Kale*, *Walcheren*, *Backhouse's White*, and *Snow's Winter White Broccoli*. Planting *Asparagus* on newly-prepared beds; also more *Caniflowers*, and a border of *Lettuces*. Moving pot *Figs* from *Orchard-house*, and plunging them in leaf-mould in pits. Whitened the ends of lean-to *Orchid-houses* on which the sun shone too fiercely. Dipping *Capsicum*s and *Chrysanthemums* infested with green fly in *Tobacco-water*.

April 26.—Potting *Mrs. Pollock Pelargoniums* and *Perilla*. Shifting standard *Heliotropes* and *Ridge Cucumbers* into larger pots. Planting out *Neapolitan Violets* and hardy *Azaleas*. Hoeing among spring flowers, thinning *Turnips*, and examining *Rose trees* for maggot. Watering *Potatoes* in frames, and afterwards earthing them up. Preparing manure for *Cucumbers* and *Melons*, and top-dressing *Cucumber plants* growing in large pots and tubs with rich loam. Keeping *Alicante Grapes* that are in flower at 70° at night.

April 27.—Potting *Czar Violets* for blooming next spring. Shifting *Celosias* into 6-in. pots, and potting off *Cockscombs* and other young *Humeas*. Sowing *Fulmer's French Beans*, more *Radishes*, and *Mustard and Cress* on borders; also sowing main crop of *Scorzonera* and *Salsafy*. Hoeing among growing crops. Earthing up *Potatoes* on early borders. Watering *Carrots* in frames, and syringing *Peach trees* out-of-doors with *Tobacco-water* and soft soap. Shifting *Gnaphalium*s from houses into cold pits, and giving a little *Stauden's Manure* to *Azaleas*, *Camellias*, *Heaths*, and *Epacris*. Making up hotbed for *Pink cuttings*, and staking and tying up the flower-spikes of herbaceous *Calceolarias*.

April 28.—Potting *Anno Boleyn Pinks* in a mixture of cow manure and loam. Shifting young *Fuchsias* into 8-in. pots for conservatory decoration, and potting off *Mesembryanthemum*s and spring-struck *Heliotropes*; also shaking out and re-potting standard *Verbenas*. Sowing *Paris White*, *Green Cos*, and *Neapolitan Cabbage Lettuces*; also *Marjoram* and *Veitch's Globe Turnip*. Thinning fruit in *Peach-house*, leaving one to each shoot. Getting frames ready for annuals. Putting saucers under *Strawberry plants* that have set their fruit. Keeping *East Indian Orchids* at 70°, *Phalænopsis* at 70°, *Dendrobium*s at 70°, *Cattleyas* at 65°, and *Odontoglossum*s at 55° at night.

Notes on Hardy Flowers.

ANTIRRHINUMS.—Plants obtained from seed sown in August last should now be planted out to bloom early in summer; and those got from seed sown now in a gentle heat would succeed them by flowering in September. Thirty years ago, when the late Mr. J. Riley, of Huddersfield, took Antirrhinums in hand, it is recorded that individual plants of them grew to an enormous size; one specimen being, it is said, 7 ft. high by nearly 4½ ft. through. This is much too large for ordinary gardens, but it shows what can be done with plants under good cultivation. The Tom Thumb varieties are very pretty indeed, forming neat little tufts when in bloom, but they should be raised from seed each year, as the two-year-old plants make taller growth.

ANEMONES.—These require an open and not too wet a position; they do well in a deep, rich loamy soil on the gravel. Beginners would do well to commence with some of the pretty Dutch varieties, double and single, which are well worth attention and not too high in price.

AUBRIETIAS.—These early, spring-blooming, hardy plants are now charmingly effective when grown in masses. Well-established patches will bloom well in almost any soil, and they bear the exposure of winter and heat of summer with but little injury. The best form met with is *A. Eyresi*, a kind with large bluish-purple flowers. *Arabis alba* and *Alyssum saxatile compactum*, used in conjunction with the Aubrietias in spring, make an effective display.

CHEIRANTHUS.—*C. Marshalli* and *C. alpinus*, the former with orange, the latter with pale yellow flowers, are now coming into bloom. Being dwarf and compact they supply good masses of colour in April and May. The former is a hybrid between *C. alpinus* and *Erysimum Peroffskianum*, and seedlings raised from it will show a mixed character, some quite reverting to the annual form. Some pretty hybrids have been raised by the Rev. H. Harpur Crewe, some of which may be seen at Castle Ashby, and I have recently seen two or three thoroughly good seedlings obtained from *C. Marshalli* and the pretty Belvoir Castle Dwarf Yellow Wallflower. Among Wallflowers the two best are the Belvoir Dwarf Yellow and the rich dark Covent Garden variety; Young's Blood Red and Golden Tom Thumb are both also very showy. Wallflowers are frequently sown too late; instead of the seed being in the ground in April, it is not sown till June and July, much too late to get good plants by autumn. The old double dark and double German Wallflowers will soon be in bloom in cottage gardens, and the double German varieties are also well worth culture. Some of these were to be seen in pots at the recent Spring Exhibition of the Newcastle Horticultural Society, with large, full, Balsam-like flowers. Some of the single German varieties are very pretty, such as these with purple and blue shades.

IMIAS AND SPARAXIS.—These beautiful Cape bulbs will now be coming into bloom, where grown in pots in a moderately warm or cold greenhouse. I have seen them grown twenty in a pot well-drained, the bulbs being potted in a mixture of sandy-peat, leaf-mould, and a little loam. If potted in October, the soil should be slightly moist, and the pots placed in a cold frame, or house, and kept there till the foliage is 4 in. or 5 in. in height; they should then be taken into the greenhouse to bloom. *Cyclobothras* and *Babianas*, treated in the same way, are also very pretty.

HOLLYHOCKS.—Choice-named varieties, that have been wintered in pots, should be planted out at the end of this month, or early in May. Some cultivators recommend planting in well-manured trenches, so that the plants can be freely watered in dry weather, as the best preservative against the Hollyhock fungus. Hollyhocks that were planted out last autumn are now commencing to make strong growth; the soil should be stirred about them, and when dry weather sets in a mulching of short manure about the roots will be of great benefit to them. The stronger and more freely the plants grow the greater is their power to resist disease.

PANSIES AND VIOLAS.—Seedlings, raised in autumn and planted out in February, are now coming into flower, and they will now bloom throughout a great portion of the summer; they will be greatly benefited by a good soaking of water in June, when the weather is dry, and then a top-dressing of soil, such as the siftings from a potting bench. Some seed should also be sown now to yield a supply of plants to flower late in summer and autumn. A new variety, named Royal Blue, is very effective in the open air; its habit of growth is dwarf, dense, and spreading, and there is a great profusion of bloom. It is one of the earliest of the blue varieties, and will quite supersede the old Clivedon Blue in the spring flower garden.

THE INDOOR GARDEN.

AZALEA INDICA AND ITS CULTURE.*

For some years past cultivators have devoted much time and attention to the cross-breeding of Azaleas with the view of improving the quality and colour of the flowers of the different varieties, and it is very gratifying to know that their labours have not been in vain, as all the best sorts now in cultivation are cross-breeds. The numerous varieties of this genus are invaluable for furnishing the stages of conservatories at a season when good flowers are scarce. If a number of the early and late flowering kinds be at command and properly managed, they may be had in flower from Christmas to May; but to accomplish this, proper accommodation is required for the necessary forcing and retarding of the early and late varieties. They are also of equal value for exhibition purposes, for floral displays on dinner-tables, in drawing-rooms, saloons, entrance halls, and they are indispensable as cut flowers for bouquets. In fact, I may say that their merits are sufficiently known to make them popular plants with every one who has glass structures in which to grow them.

Modes of Propagation.

The propagation of the plants is effected by seeds for new kinds; by cuttings; and by grafting, for multiplying individual species or varieties. Seeds should be saved from the best sorts only, the flowers of which have been fertilized with the pollen of another variety with the view of improving the colour and substance of the parent, or with the hope of securing a young progeny of stronger constitution. The hybridiser always has some object in view, and is guided by his own ideas in endeavouring to secure such object. The flowers having been fertilized, they should then be protected with a piece of thin gauze to prevent further impregnation by insects, at the same time placing the plants where they will enjoy plenty of light and air and where they can be kept dry. After the flowers have faded the thin gauze may be removed, as there will then be no necessity for it to remain over the flowers. The seed should be gathered as it ripens, and be sown in pans in rough peat early in January, placing the pans in a close warm house and covering with panes of glass, never allowing the soil to become dry, or the seeds may perish when they are germinating. As soon as the seedlings make their appearance remove the panes of glass and keep the pans in a humid gentle warmth, with as much light as possible, and as soon as the seedlings are large enough to handle, pot them into thumb-pots in a compost of sandy peat, placing them in a similar situation to that recommended for the seed-pans until the plants are established in the pots, when they may be treated as will be recommended for established plants. Shading from the sun will be necessary for the plants until they are strong enough to endure it. In propagating from cuttings these should be taken from the shoots of the current year, selecting those that are moderately strong. When the wood becomes a little hard, or what is known as being half-ripe, the points should be taken off about 2½ in. long; cut below the lowest joint, removing one or two of the lowest leaves from the lower part of the cutting, and then insert them in small pots filled with very sandy peat, say six, ten, or twelve cuttings in each pot according to their size; plunge them in a bottom-heat of about 80°, with a top-heat of 70°, where, if carefully attended to, nearly all the cuttings will grow, the principal points to attend to being shade and moisture. As soon as the cuttings have made roots they should be gradually exposed to more light and air, be potted off, and kept in a close atmosphere with a little shade until they are established, when they may be treated as other established plants. Although the propagation by cuttings is a speedy way of raising a stock of any desirable variety, still it is not a system that I would recommend, because plants from cuttings never grow so compactly as those obtained by grafting. Plants from cuttings are also very liable to produce a quantity of gross shoots or suckers from their base, which is detrimental to the plants, and although these are frequently removed, the plants will have a tendency to throw up more. I

* Road by Mr. OLLERHEAD before the Members of the Wimbledon Gardeners' Society.

have also noticed that some varieties struck from cuttings are very liable to die off even after they have attained a great size without any apparent cause—a circumstance which I must say is very grievous to the cultivator. If you wish to propagate Indian Azaleas by grafting, you must first obtain a supply of stocks, which might be raised from seed saved from the strong-growing varieties and treated in the way as previously recommended, selecting the strongest-growing seedling plants, and when these have attained sufficient strength, work on them the varieties desired to propagate; or stocks may be raised from cuttings selected from such vigorous-growing kinds as *A. phœnicca alba*, or Fielder's White, and when these have attained sufficient strength, they may be operated on in the usual way. The best mode of grafting is that known as side-grafting. The scions should be taken from the parent plant about 1½ in. long, then with a sharp knife make a long slanting cut to the base of the scion. A similar slice must be taken out of the side of the stock so that the outer edges of both stock and scion will meet together, which is a matter of great importance to insure success; they should then be neatly bound together with a piece of worsted, and be placed in a close frame in a propagating house or similar situation, and be carefully attended to with a proper supply of moisture. The best time to graft is during the spring. After the scions have united to the stock and they have made a little growth, the ligatures should be slackened, and the plants exposed to a little more light and air; and when they are considered to have made a perfect union, the bandages may be entirely removed, the head of the stock be cut off close to the scion, and the plants exposed to the temperature of an intermediate-house until they have completed their season's growth, when they may be treated in the same way as established plants. Although I have given an account of the propagation of these plants, I do not mean to say that a cultivator would be studying economy to propagate his own plants, as he would have to wait a long time before he would have the pleasure of seeing flowers, and unless he paid unremitting attention to them, in all probability he would lose the majority of his young plants. In nurseries where Azaleas are propagated by thousands, men are employed for the special purpose of attending to their wants, and this being their only study they succeed in turning out ninety-nine plants, and very often a hundred, out of every hundred grafts. This places nurserymen in a position to offer good plants well set with flower-buds at a very reasonable rate. Such being the case, I fail to see where true economy lies in any cultivator trying to propagate his own Azaleas.

Culture.

We now come to the general cultivation, and will commence with such plants as are usually met with in the trade—I mean those well studded with flower-buds and grown in 4-in. and 6-in. pots. Should it be desirable to obtain specimens as quickly as possible, I would advise the cultivator to pick out all the bloom-buds and place the plants in a little heat early in the year, so as to excite them into growth. When growth has commenced they should have a liberal shift into pots a size or two larger, using the following compost:—To five barrowloads of strong fibrous peat (not adhesive, nor yet that light fibry material we so repeatedly see used) add one barrowload of light turfy loam with a liberal mixture of sand. This should be all pulled to pieces, not chopped, and the fine drossy material rejected, the sand to be well mixed through it, and if damp it should be put into a dry open shed, and turned several times before using. Avoid making it dust-dry, otherwise there would be some difficulty in inducing it to take water after the plants have been potted. The best way to test the soil is to thrust the hand into the heap and bring out a handful from near the centre, squeeze this up in the hand and then drop it on the floor; if it fall freely to pieces, the compost may be used; but, on the other hand, should it adhere together, the heap should be turned once or twice before using. After the plants have been potted they should be placed in gentle heat, kept well syringed, and shaded from the sun, giving little or no air until they have hold of the new compost, after which time the temperature may be increased to 60° at night, with a rise to 75° in the day, or 80° by sun-heat; keep the passages, walls, and stages well deluged with water, but take care not to give

too much water to the roots. When the plants are established they will be benefited by a weak application of Standen's Manure or cow-mannre water. I have repeatedly watered Azaleas with water strongly impregnated with cow-manure, but I always take the precaution of applying it to well-established plants. Under this treatment the plants will make rapid growth, and will set their flower-buds early in the season, but the sooner these can be removed the better; push the plants on into a second growth, which is desirable to have accomplished as early as possible in order to give the plants a good rest preparatory to making two growths the following year; but also in this case the flower-buds should be removed as quickly as possible, and not be allowed to remain to waste the energies of the plants. By repeating this treatment for a few years, it is astonishing how quickly specimens may be prepared for exhibition. But should the cultivator not wish to grow them for exhibition, but merely require them for home decoration, the plants may be grown in a much cooler temperature. They will thrive well, and set their buds well in a temperature of from 60° to 65°, or even lower. Some cultivators place them out-of-doors in the month of May or June to finish their growth and set their buds; but this, in my opinion, is a practice that cannot be too strongly condemned. The plants are subjected to heavy rains, which are anything but beneficial, but rather otherwise; and although an attendant may be there to turn them on their sides in the daytime, it is not always that they are on their sides during heavy rains in the night. Some cultivators place them in their Vineries in order to make their growth, and doubtless such situations are favourable for the development of the plants, but the fact that they introduce thrips into such structures is quite sufficient to induce the cultivator to keep them out. In reference to preparing plants for forcing, some early-flowering varieties should be selected and pushed into growth as early as possible, so as to set their buds early in the season, and these should be well advanced before the plants are allowed to rest, as on the state of the buds entirely depends the time required for forcing them into bloom. If they be properly managed, the plants should flower in eight weeks after being introduced into heat. If blooms be not required before April, a temperature of 40° will suffice. In my last situation I found a number of Azaleas in a very bad state, with scarcely a flower-bud on them. Immediately they commenced growth I gave them a partial drying, and had some soil (as previously described) in readiness, and turned the plants all out of their pots, beating the soil out of the roots with the flat side of a spade; in fact, I shook them out just as clean as if they were *Pelargonium*s, thinned out all weak wood, and after potting them into smaller pots I devoted a house to them and treated them in the way described for exhibition plants, except that I left the bloom-buds on the second growth, after which I was well rewarded with an abundant display of flowers the following season. Azaleas should never be allowed to flag from want of water, as this would be sure to end in the loss of foliage. When watering them always fill up the pots sufficiently to cause the water to moisten the whole ball of soil. Always keep them well supplied with moisture during the growing season until the buds are set, then cease syringing overhead, but let the passages and walls be moist, except in frosty and dull weather. Never water the plants until they require it, and always keep them free from insects. Never adopt that detestable system of training by twisting and crossing the shoots to bring the plants into a stiff unsightly shape; but carefully tie out the branches and encourage the shoots to assume a natural appearance. In potting always pot firmly.

Insects.

Azaleas are liable to the attacks of brown and white scale. These may be destroyed by turning the plants on their sides and giving them a thorough syringing with water heated to 140°, turning the plant round as the operation is going on, so as to make sure that every portion has its share of hot water; but be careful to keep it from the roots. Brush the leaves and stems in half an hour after the application, and if not effectual, repeat the dose; or use Gishurst compound, 8 oz. to a gallon of water heated to 140°, and apply the solution in the same way; or soft soap in the same proportions. Any of the above

remedies will be effectual; but they must be applied when the wood is ripe. They are also frequently infested with thrips, the best remedy for which is to fumigate strongly with Tobacco every other night for a week or so; or give the plants a thorough syringing with Gishurst compound, 4 oz. to the gallon of water, being careful to keep the mixture out of the pots. This may be done by turning them on their sides. In ten or twelve hours afterwards syringe the plants with clean water, by which time they should be free from every thrips.

USE OF BAMBOO STEMS IN LAYERING.

LE COMTE DE CASTILLON describes in the "Revue Horticole" one of the many interesting modes of layering employed by the Japanese in cases of strong branches, or those situated high on the stem; the basin formed by the joint of the large Bamboo which grows in that



country makes the stems convenient for this purpose. As will be seen by the sketch, the Bamboo layering-pot is so formed as to support itself firmly. There is, of course, soil in the vase formed by the joint, this soil being covered with Moss or small herbs, and kept moist.

BOUGAINVILLEAS AND THEIR CULTURE.

CONSIDERING the great beauty of these and their general usefulness either for furnishing cut flowers or for general decorative purposes as pot plants or roof climbers in stoves, it will, I think, be readily conceded by those well acquainted with them that they are not nearly so much grown as their merits deserve. Many have abandoned their cultivation under the erroneous idea that they are shy bloomers, whereas the reverse of this is the case, when they have the right treatment and are subjected to plenty of sunshine and light to ripen their wood. This, however, applies more to *B. speciosa*, that flowers on the young growth of the previous year, than to any other, and as this is the finest and most useful species, and one which requires different treatment from *B. glabra*, it may

be well to notice it first. There is probably no plant that is more tenacious of life or one which is more tractable and easy to cultivate than this

Bougainvillea speciosa.

It will stand extremes of heat and cold, and variations as regards moisture at the root that would prove fatal to any other plant with which I am acquainted. I have had it for weeks in a 12-in. pot standing in full sunshine without a drop of water being given it beyond what it got from syringing, and this treatment has invariably been attended with the best possible results, as it is only by checking over-luxuriant growth in this way and getting the wood thoroughly ripened, that it can be induced to put forth that lovely, rich, satiny-looking inflorescence for which it is so much admired. The secret of success with this plant is to have the roots under perfect control, and unless this is attended to, failure is inevitable, as it is impossible to restrict growth in any other way or to ripen it after it is formed. Those, therefore, who happen to have over-luxuriant plants of this species that do not produce flowers so freely as they may desire, should at once attack the roots and cut away any that appear to ramble far away or deep down in the soil beneath, and only leave such as are near home, as it is termed, and are furnished with plenty of fibre. This done, the next thing is to form a hard, impervious bottom which may be managed by mixing up a small quantity of quick-setting cement with some fine, clean gravel and spreading it under the ball of earth, which should then be bricked round, leaving only just sufficient room to contain a yard of soil at the most, as that will be ample for any plant required to cover the roof of a large house. Before filling in around the roots, it is important that the plant should be afforded free drainage, which may be best done by placing under it 6 in. or so of soft porous brick, broken into moderately small pieces, that will absorb any surplus water passing through the soil and give it back slowly for the roots to feed on. This interference below reducing, as it must necessarily do, a great number of the feeders, should be accompanied with a corresponding reduction of the top, which may be carried out by cutting away the greater portion of the side branches, leaving only sufficient to lay in to furnish the roof thinly and on these the flowering wood will be formed. The plant should, when filled in around the roots with some sharp sandy soil, receive a good soaking of warm water and be kept well syringed overhead till it starts into fresh growth, when a somewhat drier state of the atmosphere may be permitted, and plenty of air be afforded on all favourable occasions. Should the young shoots formed during the summer appear so thick as to overshadow or interfere with each other, thin them out, leaving them about 6 in. apart, but do not stop the ends of any remaining, as they will flower during their entire length and form festoons of great natural beauty. By the end of August or beginning of September a drier state at the root should be allowed, and water should be altogether withheld after the latter month till the blooming period is over, as it frequently happens that, instead of bringing the floral bracts to perfection, they shed the whole of them after the application of water, especially if the soil should happen to be cold at the time. In places where it can be arranged to have the roots near the heating apparatus, advantage should always be taken of such a position, as there is no plant fonder of a warm, dry bed during the winter than the *Bougainvillea speciosa*, or one that makes a better return for attention in that way. Although considered a stove plant, and one that will bear almost any amount of heat, it succeeds well in an intermediate-house, and may be grown as successfully there as anywhere else, but, wherever placed, it is essential that it be trained tolerably close up the glass, so as to have the full benefit of all the sun and light that can be afforded, and never shaded at any time. In cases where only a limited portion of the roof can be devoted to the culture of this very desirable plant, a 12-in. or 15-in. pot will contain plenty of soil to grow it to perfection and keep it in a perfect state of health for many years. A slate box is, however, in every way preferable, as it can be placed so as to fit in any corner immediately over a hot-water pipe, a position that will suit the roots exactly. A slate tub is also neater in appearance than a common earthen pot, and

therefore desirable on that account; but in whichever way the plant may be grown, it should have perfect drainage and a poor sandy loam firmly pressed in around the roots, otherwise the growth is apt to become unruly while the plant is young and full of vigour. With the roots under control in this way, it is an easy matter to administer stimulants in the form of liquid manure whenever necessary, a practice that is far better, in most cases, than affording rich soil at the outset. Those who are not in possession of this *Bougainvillea* will find the present a good time to start with it, as by getting it up to the roof to make its lateral growth early, a great display of flowers may be obtained next February if the system of cultivation detailed above be carried out. In order to get the plant up to the roof as quickly as possible, all side shoots should be kept nipped off as they appear, and every encouragement should be given to the leading one by tying it and training it properly till it has reached the desired length, when that, too, should be stopped, in order to induce side branches of form on which the inflorescence will be borne. Although

Bougainvillea glabra

is equal in value to the above as a roof climber, it is as a pot plant for exhibition purposes or conservatory or greenhouse decoration that it is most prized by cultivators, and when laden with its lovely, pale-pink-coloured bracts, it certainly is an object of great beauty, thoroughly deserving a place even in the most select collection. Planted out and treated as to root room much after the manner of *B. speciosa*, there is no end to its blooming capacity and the quantity of cut flowers which it affords from May to December, during the greater part of which time it is in full beauty, and is then quickly succeeded by the above-named variety, so that the two nearly girdle the year round with their richly coloured bracts. The treatment required by *B. glabra* differs materially from that necessary for the variety already touched on, both as regards watering and pruning, as the flowers are produced on the young wood immediately it is formed, and therefore the whole of the previous year's growth must be pruned away, except such as may be wanted for furnishing any vacant places that may exist in any part of the plant. This should now be done at once, and a soaking of warm water given, after which all that is necessary during the summer in the management of the top is to cut out all gross shoots as they appear, and to thin the remainder sufficiently to prevent them from encroaching on each other so as to shade the bloom or mar its effect. From December to April, the soil should be kept dry to afford it a rest, when if in a cool house, in which it may be grown most successfully, the leaves will fall off, but without affecting the health of the plant. For pot culture it is one of the most tractable things grown and readily conforms to any kind of training; it may be had in the pyramidal form, or as a standard, or trained to any kind of trellis, on which, if not too stiffly tied, it makes fine specimens and produces a striking effect. To get plants of this in early for conservatory decoration they should be pruned at once, cutting away all weak, superfluous wood, and shortening back the stronger to be tied thinly and regularly over the trellis. When pruned they should be partly shaken out of the old soil and repotted in good fibry loam either in the same-sized pots or others of larger dimensions, according to the requirements of the plants, and the purposes for which they are wanted; this done they are ready for starting into growth, which should be effected by placing them in any forcing house at work where they can get a gentle syringing, and have plenty of light in order to keep the young shoots short-jointed and strong. If the soil be moderately moist at the time of potting as it should be, very little, if any water will be required till they get well into leaf, after which they will need water in increased quantities as growth proceeds and the pots fill with roots, when liquid manure will be found of great assistance to them, and may be given at each alternate watering. If grown on stages amongst other plants, they should be set on inverted pots, with their heads well up to the glass, where they can be fully exposed to the sun and have plenty of air on all favourable occasions. Treated in this way, every shoot will flower from the base to the summit of the plant, and the floral bracts will possess more colour and substance than would be the case under less favourable condi-

tions. Any that are required for conservatory decoration should gradually receive more air, so as to inure them to the change by degrees, and when in that structure they should be so placed as to have but little shade, except what may be afforded by the roof climbers kept within bounds by regular and proper thinning. *B. glabra* is so hardy, compared with the other, that it will winter with safety in a temperature not lower than 45° if kept dry at the roots, and it is on this account a very desirable plant to cultivate as it may be stored away in any warm shed or cellar along with *Fuchsias* and similar plants till the time comes round for starting them again. Both this and *B. speciosa* may be readily increased by taking off the short young wood with a heel, and inserting it in sandy soil in the propagating box, where they can get a brisk heat and be kept close for a time. Fortunately, neither are much affected by insects, their only enemy being green fly, and this is merely troublesome while the shoots are young and tender, and the plants are just putting forth those lovely floral bracts for which they are so highly prized. Just at that time they require close watching, as the aphides insinuate themselves among the leaflets long before they begin to unfold, and damage their appearance. It is therefore advisable to give the house a whiff of Tobacco smoke, whether their presence is observed or not, for sooner or later they are sure to make their appearance, unless timely precaution be taken to prevent them. S. J.

THE FUCHSIA AS A CLIMBER.

WERE the *Fuchsia* to appear at the present time as a new introduction, it would probably be welcomed as a glorious acquisition to our climbing plants, notwithstanding the wealth of fine subjects we now possess in that way; but, as it happens to be common, it is rarely now planted as a conservatory climber. Yet it can hardly be surpassed for that purpose. The *Taesonja Van Volxemi* is a splendid and very popular climber, but it has neither such wealth of flowers nor contrast of colour as the *Fuchsia*, and it certainly is not so accommodating as regards temperature. We have some old *Fuchsias* growing up the rafters of one of the houses here, which we are sure need less attention than any of our other climbers, and which produce no end of flowers between May and November. The shoots hang down 5 ft. and 6 ft. from the roof, laden with their drooping flowers, and whole bundles of such shoots are cut off during the summer to decorate glasses and vases that have to be trimmed with drooping flowers and foliage. The plants have stems like old Vines, and are growing with their roots outside, no one exactly knows where, but it is believed they are luxuriating in the stiff loam under the foundations. In December the shoots are all cut close back to the stem, just like spur-pruned Vines, and during summer they are not tied or trained in any way, unless they droop so low down as to be an inconvenience, when they are looped up. The *Fuchsia* is an astonishing grower when planted out, and young plants run up the rafters in a couple of years or so. Our trees—for so they may be called—have young shoots upon them now 18 in. long, though they are growing in a cold house, where the fire is never lighted except to exclude frost. The *Fuchsia* will grow vigorously in any common garden soil, and if it be rich all the better, provided the plants have room, air, and light, and are allowed to extend during the summer. As regards training, the best plan is to take one leading shoot up the rafter or wire, and let it grow as much as it will (a *Fuchsia* will sometimes grow 10 ft. or more in a season), at the same time permitting all side branches or laterals to grow without stopping also. These are always produced regularly and abundantly along the main stem, under favourable conditions; and they will grow several feet long, and flower along a good part of their length, though the blooms are produced in greatest quantity at the points of the shoots. No lateral training should be attempted; the leading shoot only should be guided by tying it to the wire, but all the others should hang down from the roof. Now is a good time to plant, and if old pot plants with tall stems be available for the purpose, they are better than young ones, as they afford a good start. The plants need only be shaken out and planted like Vines; and if provision be made for them to root through or under the wall to the outside, all the better. The usefulness of the *Fuchsia* for cutting for indoor decorative purposes has been already alluded to; but a word more may be added on that point. The more free-growing varieties make much longer and suppler shoots when planted out than they do in pots, and they will bear bending like Willows. We cut them off their entire length for vase work, sticking them in round the edges of

tall vases, from which they droop in a graceful and showy manner; and they mix well with almost any other flowers. Sometimes, when used as a drapery for large vases containing groups of plants, we have just stuck the shoots into the flower pots and let them hang over. The soil in the pots being moist keeps them fresh for some days, even in very dry rooms; and when they begin to droop they are renewed. The plants are nothing the worse for the thinning, and they grow fast enough to afford a good supply of shoots for cutting. There are two or three old bright scarlet varieties of the *Fuchsia*, the names of which we do not know, that make good climbers, and they are often seen growing in that way; but almost any variety will succeed. Strong-growing, free-flowering sorts should, however, be chosen for the purpose. It may just be stated that tall plants grown in pots or tubs may be grown as successfully against a wall out-of-doors as under glass, provided they are protected in winter, or sheltered after being pruned in some cold shed or house till about the month of April, when they may be put out.—“Field.”

LACED AURICULAS.

I AM careful to distinguish “laced” flowers from those so well known to Auricula growers as “edged” flowers, because those to which I now direct attention have little in common with the latter. We are indebted to the Messrs. Vilmorin, of Paris, for the charming strain of Auriculas that include the laced flowers, and although even the best of them may not be perfect show varieties, yet they have qualities that show a capacity for improvement. They are apparently allied to the Alpine section, and size and good form characterise many of the best kinds, whilst the markings vary both in hue and density. Some have the belting as clearly defined as in the laced Polyanthus, others have it partially suffused into the body, but of course in a strain of laced flowers, clear and perfect markings would be indispensable. In a batch of young plants raised from seed sown last spring and just now coming into flower, one has a clear lemon centre, surrounded with a ground of heavy maroon, broadly laced with a clear margin of pale peach. Another has a ground of deep purple shading off into a margin of pale mauve. The ground of another is almost black maroon laced with greyish buff. Another has a lacing of bright buff much like that of a gold-edged Polyanthus; another has a lacing of lavender; and in another there are three distinct tints, viz., ground colour, deep maroon clearly belted with pale purple, and laced with French white. The seed was not sown until late in the spring, and the seedlings were pricked out into a soil bed in a large roomy house for the winter, where they were quite at home, and evidently have done better than those kept in pots; all are now lifted for convenience into small pots, and the selected plants will thus be kept for future care and cultivation, the remainder being planted out in the open ground. The idea is prevalent that the winter is detrimental to the Auricula in the open ground, and probably this is the case with choice kinds, but robust, showy sorts, such as this laced strain, will do well as border plants, and perhaps be more in danger from excessive drought than cold. Where the open ground is decidedly unsuitable to the winter growth of the Auricula, it should be wintered in cold frames, and if the plants be lifted in the autumn, potted, and kept moderately dry until the bloom-buds appear, they will be none the worse for removal. For showy spring beds these Auriculas are well adapted, as they furnish much variety and beauty without displaying a mass of colour. If the plants can be transferred from some cool border in the autumn to the bed direct so much the better; but if the housing in winter be indispensable, then the plants should be plunged in the pots in the bed until the bloom is past, when they can be returned to the frame or any other cool situation.—A. D.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Striking Gloxinias in Cocoa-nut Fibre.—The leaf-stalks of Gloxinias strike readily in Cocoa-nut fibre placed on a bed in which there is a gentle warmth. When rooted, the bulbs and roots are more easily and safely removed from among this material than from soil.—S.

Blue Greenhouse Climbers.—These are comparatively scarce, but we have a good and really useful one as far as cut bloom is concerned in *Konnedya australis*. It commences to bloom in a cool house in March, and lasts in good condition for a considerable length of time. A large plant of it trained up to the roof of the conservatory at Kew, is now laden with clusters of bright blue pea-shaped blossoms, which, associated with flowers of other colours where they grow and also in a cut state in vases, are exceedingly effective.—C. S.

Forced Roses.—There is one Rose which I always admire, whether forced or otherwise, and that is Charles Lawson, the fine form and lovely colour of which render it welcome either in spring or summer. Plants of it well established, and brought on gradually for cut bloom and conservatory decoration during the spring months, would be difficult to excel either for quality or quantity of produce by any Rose in cultivation.—J. GROOM, *Henham*.

AN “INTERNATIONAL” FLOWER SHOW IN HOLLAND.

WE have had too many “international” exhibitions of late years. Still they seem to increase, though as at present managed they must fall into disrepute. They are seldom really international in character; they are frequently originated in the interest of local or partial commercial interests, and they usually take place at a time of year when it is impossible to judge of the really important and instructive horticultural productions of the countries in which they occur. The time of flowering of some class of plants grown extensively by the local nurserymen usually governs the time of opening. Nobody can suppose that Azaleas, for example, have any but a trifling importance in the horticulture of a country; yet to see such (a familiar sight enough) plants in their best dress a number of weary pilgrims are induced to make long journeys at a time when there is not a green leaf to be seen, and when it is often impossible to see anything beyond the show itself. An international exhibition, to be really useful, should be held at a time when the important products of a country may be seen in perfection. It is generally unwise to hold them at times when only one branch of horticulture can be profitably represented. Occasionally the presence of the “great world” in a large centre like London must govern the season of the holding of an exhibition for financial reasons, but this can only apply to London or Paris. Nothing could be more instructive and beautiful than a representative collection of fruit in such a country as Holland, Belgium, Germany, or Northern France; yet these shows are held at a time when fruit is not to be seen. A great fruit show would not merely be of far more importance to any of the said countries than any group of ornamental plants, but it could not fail to be of great value to people like ourselves inhabiting similar countries. Local varieties of merit would be made known, and our knowledge of the varieties and the modes of culture that succeed best under adverse conditions would be increased. But apart from such considerations the beauty of a fine collection of fruit will sometimes appeal to us as much as that of flowers. M. C. Ballet once showed a collection of hardy fruits in Paris which for beauty alone was as striking as anything ever seen at a flower show, and in autumn or in summer one could also visit the gardens and orchards, and see the modes of culture. It is scarcely necessary to say here that we owed some of our best vegetables, in the first instance, to Continental countries, the culture in which is often superior; the shows are held at a time when few vegetables are to be seen, and when their culture in private or in market gardens cannot be observed. As to trees and shrubs, and even country seats, they are seen to great disadvantage in spring even if the weather be favourable; it is generally, as everybody knows, the reverse of that in northern Europe in April. Encouraging reports of the last great show at Amsterdam led us to follow the example of others and cross the brown waters of Holland, in the hope of finding some interest in the International Show opened April 12, at Amsterdam—a more ill-managed or less instructive affair it would be difficult to imagine! This was not so much from deficiency of products as from want of plan or energy of management, though, as regards the subjects shown, there was nothing very remarkable to speak of. Such as it was it appeared much less owing to the scattered arrangement and feeble plan; a large and suitable building (the Crystal Palace of the town) should have contained all the important groups and classes of tender plants; only a few groups of Palms, however, were placed in it, all the rest of the very suitable space being filled with a variety of objects having little or nothing to do with horticulture, such as wild animals (cast life-size) in coloured plaster, machinery, cutlery, sewing machines, &c. Various fine collections of plants which ought to have been arranged in this exhibition were scattered about in two different gardens (near the main building) in such a way that all good effect was lost. Some persons, indeed, only saw one of the gardens, owing to their being separated from each other in an awkward manner by the main building and by a road. This is all the more to be regretted when it is considered that few cities in Europe have a more suitable structure for the holding of a great flower show than this building, where such good opportunities were lost. In the garden where plants more or less tender were exposed

in structures wholly or partially open to the April zephyrs of the North Sea, were also arranged fruit trees, shrubs, and evergreens in considerable quantities; for these and like subjects the gardens might have been wholly reserved with advantage. The defective nature of the plan, however, was less noticeable than the needless waste of time in opening the show. The work of arranging and judging the plants and opening the show, which usually occupies a busy morning in England, was here scattered over several days. With us the result is that we see the flowers in all their freshness; here on the morning of the opening day many of them were so withered, that those who did not know they were martyrs to needless delay and exposure, wondered why they were ever sent to a flower show. As instructive or interesting features, the show was very poor from our point of view; nor could it well be otherwise from reasons before mentioned. There were the usual graceful Palms, &c., and as Holland is the land of bulbs, there was a good show of bulbs; but this was certainly no better than is occasionally seen in London in spring, one held during the past spring at Kensington being generally considered to be better. From the point of view of indoor gardening, it was interesting to notice the great number of Hyacinths grown to perfection in glasses. Bedding-out and "panels" of Alpine and various other plants of the most miserable description were seen here and there about the grounds. Among these it was amusing to notice miniature copies of the mud edgings which give such a distinguished aspect to some of our London parks and gardens. Numerous herbaceous and Alpine plants were shown without flowers or with few. As these plants are before all others the most floriferous, such exhibiting is calculated to bring them into unmerited disrepute. Roses forced were seen in some abundance—tall and poor standard plants, scraggy bouquets held on the end of broomsticks. The best plants in the show (new plants, Orchids, Ferns, and mixed collections) were brought all the way from London by Mr. B. S. Williams. Notwithstanding the delay and the long journey the plants seemed as fresh as if at home in London. For these well-grown and choice collections Mr. Williams obtained no less than eight gold medals and the first prize for new plants. Fruit trees were shown in sufficient abundance in the ground to show that the best methods of training known to the French are practised to good effect here. Among the few interesting foreign displays was that of beautiful and well-preserved fruit from Turin. These showed well the capacities of Italy for fruit culture. It would be interesting to learn how so many fine Apples are so long and well preserved. The collection of artificial fruit from Turin was also very remarkable, and the best and most accurately formed we have seen. Artificial flowers have no charm for us, but in the case of fruits good models offer us the best of all means of identification; therefore collections of them would be valuable in agricultural and horticultural schools, and in local and other museums.

To award the prizes in the various classes (a labour which could be got through well by a dozen good men in three hours) an army of between 300 and 400 jurors from all parts of Europe were invited. In illustration of the management of the show, we may mention that in some cases the cards indicating the various prizes were not in their places until two days after the jurors had completed their awards. There was no printed list of prizes obtainable in any language on the day of awarding the prizes or the day after. On the opening day the structures containing the newer and choicer plants were closed until His Majesty had walked round. As this did not happen till late in the day, there appeared to be no reason why the plants should be so hidden away. Those who wished to see the collections in the morning of the only day when they might be seen to the best advantage were in this way deprived of the opportunity of doing so.

Coloured Wild Primroses.—In a meadow near here are numerous Primroses of various shades of colour, varying from white to bright pink. As they seldom vary from the original type in woodlands, is this the result of the land being more or less matted or cultivated?—J. GROOM, *Hobham*.

Early Roses.—If the weather keep favourable we shall have Hybrid Perpetual Rose blooms in quantity out-of-doors early in May. The shoots are now about 1 ft. long and show fine strong buds. To have Roses thus early the trees must be pruned in November and the plants must occupy a very sheltered position.—A NORTHERN GARDENER.

HAPPY MARRIAGES.

THE numerous hardy climbers which we possess are very rarely seen to advantage, owing to their being stilly trained against walls. Indeed, the greater number of hardy climbers have gone out of cultivation, owing to there being no general idea as to their proper use. One of the happiest of all ways of using them is that of training them in a free manner against trees; in this way many beautiful effects may be secured. The trees must not, of course, be those crowded in shrubberies, but standing on the turf. Established trees have usually exhausted the ground near their base, which may, however, afford nutriment to a hardy climbing shrub. In some low trees the graceful companion may garland their heads; in tall ones the stem only may at first be adorned. But some vigorous climbers could in time ascend the tallest trees, and we can conceive of nothing more beautiful than a veil of such a one as Clematis montana suspended from the branch of a tall tree. A whole host of lovely plants may be seen to great advantage in this way, apart from the well-known and popular climbing plants. There are, for example, many species of Clematis which have never come into cultivation, but which are quite as beautiful as climbers can be, and which may be favourably seen in this way. The same may be said of the Honeysuckles, wild Vines, and various other families of which the names may be found in catalogues. In consequence, however, of the fact that no system



Japanese Honeysuckle on Stem of Birch tree.

of growing these plants to advantage has ever been carried out in our gardens, nurseries are by no means so rich in them as could be desired. Much of the northern tree and shrub world is garlanded with creepers, which may be grown in the way we suggest and in similar ways, as, for example, on banks and in hedgerows. The naked stems of the trees in our pleasure grounds, however, have the first claim on our attention in planting garlands. There would seldom be need to fear injury to established trees.

Tomato Leaves & Insects.—"I planted a Peach orchard," writes M. Siroy, of the Society of Horticulture, Valparaiso, "and the trees grew well and strongly. They had but just commenced to bud when they were invaded by the Curculio, which was followed, as frequently happens, by ants. Having cut some Tomatoes, the idea occurred to me that by placing some of the leaves around the trunks and branches of the Peach trees, I might preserve them from the rays of the sun, which were very powerful. My surprise was great on the following day to find the trees entirely free from insects, not one remaining, except here and there where a curled leaf prevented the Tomato from exercising its influence. These leaves I carefully unrolled, placing upon them fresh ones from the Tomato, with the result of banishing the last insect, and enabling the trees to grow with luxuriance. Wishing to carry still further my experiment, I steeped in water some fresh leaves of the Tomato, and with the infusion sprinkled other plants, Roses and Oranges. In two days these were also free from the innumerable insects which covered them, and I felt sure that, had I used the same means with my Melon patch, I should have met with the same result."

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

APRIL 18.

THIS meeting was one of the most attractive that has been held in the gardens at South Kensington during the past two or three years, and although the produce shown was, for the most part, simply such as is daily supplied to Covent Garden Market, yet the exhibition was a most successful one. Mr. Webber's collection of fruit was very attractive, the basket of Lady Downes Grapes which it contained being in wonderfully good condition, and the examples of new Black Hamburgs were far above the average, as were also Apples, Pears, Bananas, and Pine-apples. Messrs. Draper & Son sent a large collection of imported vegetables and fruit. Mr. Foupert (the only representative of the London market gardeners) furnished a good collection of Salading and other vegetables, and Mr. Domelle, of Guernsey, well represented the culture of early Potatoes (one of the principal industries in the Channel Islands) by sending six baskets of Myatt's Ash-leaf Potatoes in splendid condition, large smooth tubers, which could scarcely have been surpassed even in the height of the Potato season. Among cultivators of decorative plants Mr. Herbst had one of the most effective groups shown, his Lilies of the Valley and *Primula cortusoides* being most tastefully grouped; while Mr. Beckwith's *Pelargoniums* were simply perfect as decorative plants, both as regards foliage and bloom. Mr. Reeves, of Acton, had a well-arranged and extensive collection of Palms, *Dracenas*, *Arum Lilies*, Tulips, *Spiræas*, and other plants; and Messrs. Wright, Mr. H. B. Smith, and other growers more fully alluded to elsewhere, also contributed excellent collections; Messrs. Rollisson & Sons, Azaleas; and the Rhododendrons and Roses in pots from Messrs. Lane & Son, were perfect masses of bloom. Messrs. Osborn, Mr. B. S. Williams, and Mr. Wills, had also large and varied groups of decorative plants, and Messrs. Barr & Sugden showed a large and varied group of cut flowers of *Narcissus*, tastefully arranged on a background of Ferns and Lycopods; these embracing, as they did, about fifty distinct kinds, attracted much attention. Altogether, the display was most interesting, and one which reflected much credit on all concerned in its production.

First-class Certificates.—These were awarded to the following new and rare plants:—

***Pelargonium*, Duchess of Bedford** (G. Beckwith & Sons).—A fancy decorative variety, pure white with a pink spot on the upper petals, all the latter being, moreover, elegantly frilled. It grows freely and will doubtless soon be popular as a market plant.

Primula cortusoides purpurea (R. Dean).—A slender-habited variety bearing graceful umbels of dark bluish-purple flowers. It is a distinct and effective kind, and will be useful for contrasting with pale-tinted or white kinds.

Primula cortusoides maxima (R. Dean).—A very floriferous variety, bearing umbels of large pendent flowers and deep rosy buds. The backs of the petals are of a deep rosy-lilac tint; the flowers as seen from the front are nearly white.

Primula cortusoides cœrulea (R. Dean).—A large-flowered, white variety, delicately tinted with pale cœrulean blue. It well deserves culture as a decorative plant along with those just named and a richly-tinted variety of the same batch named *laciniata*, which was certificated last year.

***Polyanthus*, Duke of Wellington** (G. Smith).—A remarkable gold-laced variety, having nearly black markings on a pale golden ground. This is very attractive, and one which deserves a place in all gardens in which gold-laced *Polyanthuses* are still grown.

Tulipa Greigi (H. J. Elwes).—A noble hardy Tulip, bearing vivid orange or vermilion-tinted flowers, each petal having a bold blackish blotch at its base. The glaucous foliage is spotted and blotched with purplish brown. A most showy hardy bulb, well worth culture in all good collections.

Miscellaneous Collections.—Mr. B. S. Williams sent *Acalypha musaica* and a new spiral-leaved *Croton* named Prince of Wales. Messrs. E. G. Henderson & Sons furnished two new varieties of *Coleus*, one of which, named Pine-apple Beauty, promises to become a popular decorative plant. It is compact in habit, the basal halves of its golden-yellow leaves being of a rich maroon tint. It is distinct from a somewhat similar variety named Lady Burrell, the whole under-surface of the leaf being yellow. Messrs. H. Lane & Sons, of Berkhamsted, sent a large and well-flowered group of *Roses* in 9-in. pots. Among them we noted Madame Lacharme, the new white variety; General Jacqueminot, one of the oldest and best of fiery crimson; Elie Morel, a soft peach-coloured variety; Queen of Waltham; and others of equal merit. From the same firm came six well-grown *Azaleas* in dense pyramids of flowers and foliage 4 ft. in height. Messrs. Lane & Sons likewise contributed a large and gorgeously-flowered group of *Rhododendrons*, one of which, named The Queen, a delicate blush-tinted kind with a yellow spot, struck us as being remarkably handsome; and the same remark also applies to Mrs. R. Holford, a bright rosy variety with crisped petals. Messrs. Osborn & Sons, Fulham, sent a small but attractive group of new Palms, Ferns, and other decorative plants, among which we noted a very large-spined variety of *Anthurium Scherzerianum*, the colour of which was more vivid than is usually the case in these large-spined kinds. Among the more distinct Palms in this group *Licuala horrida* deserves notice, its peltate leaves being slit into windmill-like lobes. This group was a semi-circular one, and fringed with *Isolepis gracilis* and *Adian-*

tum Farleyense. Mr. John Wills had a similar group of large *Areca*s, *Kentias*, and other rare Palms, arching gracefully over a mass of *Azaleas*, *Dendrobium nobile*, scarlet *Pelargoniums*, and Lily of the Valley, the whole fringed with *Isolepis*, *Dracenas*, and *Begonias* of various kinds. Mr. B. S. Williams contributed a large and varied collection of new and rare plants, among which we noted *Echmea Mariæ Reginae*, in habit something like a broad-leaved Pine-apple, the inflorescence being graced with magenta-coloured bracts. A pair of well-bloomed plants of *Azalea amœna* were very attractive, and among the *Orchids* were a richly-marked form of *Odontoglossum triumphans* and a plant of the new *Phalaenopsis Manni*. Mr. J. Aldous, Gloucester Road, South Kensington, showed a group of *Azaleas*, *Heaths*, *Calceolarias*, and other decorative plants, among which were some well-grown pots of *Rhodanthe Manglesi* and pink *Hydrangea*. Messrs. Crocher & Boller, 73, South Row, Kensal New Town, sent a collection of miniature succulents of various kinds, tastefully arranged along with Ferns and other plants. Messrs. W. Rollisson & Sons furnished about two dozen floriferous plants of *Azaleas*, among which were some of the newer Continental kinds, trained in the form of dwarf standards with semi-circular heads about 2 ft. across. Among these we noted *Mdlle. Van Houtte*, a semi-double white, rosy-striped form of good size and substance; Charles Leirens, double scarlet, very vivid; *Gloire de Belgique*, white; President Ghellinek de Walle, carmine-rose; and others equally good. Mr. R. Dean sent a mixed group of *Primroses*, laced *Auriculas*, *Daisies*, and *Forget-me-nots*, all in admirable condition; also examples of golden, crimson-maroon, and brindled single *Wallflowers*, now so largely grown in London market gardens for spring flowers. From the same exhibitor came a showy group of seedling forms of *Primula cortusoides*, varying in colour from white, through all the shades of rose and lilac, to bluish-purple. Messrs. Barr & Sugden contributed about fifty varieties of new seedling and other *Narcissi*, some of the forms being very distinct and effective as garden plants, and others curious and interesting as being hybrids of curious structure. Among these fresh and charming flowers we noted some handsome seedling forms of *N. incomparabilis* and *N. Macleayi*, and two varieties of *N. triandrus*, one with a short white cup and clear sulphur-yellow reflexed petals being named *pulehellus*; another having a longer cup and very narrow petals, both cup and segments being of a creamy-white colour, and which further differ from the last in only bearing a solitary flower on each scape, looks like one of the links between *N. triandrus* and the rare *N. calathinus*. Some white forms of the *N. incomparabilis* group had lengthened yellow cups finished with orange-vermillion, and were very showy. This collection of *Narcissi* was one of the most extensive and complete ever exhibited at one time, and was much admired.

Covent Garden Produce.—The following collections of decorative plants were contributed by the principal cultivators who supply Covent Garden market, and, taken generally, were remarkable examples of good culture and effective arrangement. Messrs. H. R. and G. Wright, Turner Road, Lee, contributed a well-grown collection of Palms, Ferns, *Orchids*, and other decorative plants. Among the *Orchids* was a good specimen of *Oncidium sarcoodes*, with rich brown-blotched golden flowers, and a five-flowered plant of the snowy white *Cypripedium niveum*. Mr. George Poulton, Fountain Nursery, Edmonton, sent a batch of about 150 well-grown plants of *Spiræa (Hoteia) japonica*, bushy little plants in 6-in. pots. Mr. James Puttick, Park Road, Acton, showed a large group of double and single-flowered *Zonal Pelargoniums* of various colours, mixed with bushy, well-flowered plants of the large-flowered kinds, the whole tastefully margined with *Mignonette*, purple-flowered *Stocks*, and scented *Stag's-horn Pelargoniums*. Messrs. W. & A. Brown, of Hendon, furnished a remarkably well-arranged group of large-flowered and *Zonal Pelargoniums*, interspersed with well-flowered plants of the old-fashioned but ever welcome *Fairy Rose*, the whole being fringed with *Forget-me-nots*, hardy *Polystichums* and other Ferns, *Tricolor Pelargoniums*, and a remarkably compact and handsome dwarf rosy-flowered *Silene*. Mr. H. B. Smith, of the Ealing Dean Nursery, sent a well-grown collection of Palms, including a white variegated form of *Lantana borbonica*, coloured-leaved *Dracenas*, *Phormium tenax variegatum*, silvery-striped *Pandanus*, and Ferns, the latter including good plants of *Adiantum Farleyense* and the gossamer-like *A. gracillimum*. Messrs. J. & J. Hayes, of Edmonton, exhibited an extensive mixed group of scarlet *Pelargoniums*, purple, blue, and rosy *Cinerarias*, pink and white *Heaths*, *Cytisus fragrans*, *Fuchsias*, and Ferns—all well-grown plants in 6-in. pots, admirably suited for decorative purposes. This group was one of the largest in the show, being 40 yards in length and some 5 ft. in width. Mr. H. Herbst, of the Richmond Road Nurseries, Kew, sent one of the largest and most tastefully-arranged groups exhibited. It contained graceful *Areca*s—especially one named *A. Herbsti*—and other young seedling Palms; the snowy-white *Spiræa japonica*, and banks of Lily of the Valley and crimson *Azaleas*. The Lily of the Valley in this group were remarkable examples of good culture, and were much enhanced in beauty by being set in a frame as it were of the rich carmine-purple *Primula cortusoides amœna*. Messrs. Brookes & Gallop, 195, Western Road, Brighton, contributed a large basket of a remarkably vigorous *Mignonette* named Miles' New Hybrid Spiral. The flower-spikes are from 4 in. to 6 in. in length, and well furnished with blooms. Mr. Henry Garnett, 131, West Street, Sheffield, sent a golden-leaved form of common *Musk*; and a group of cut flowers of seedling fancy *Primroses* came from Mr. W. Culverwell, Thorpe Perrow. Several attractive stands of Alpine, show, and yellow-flowered *Auriculas* came from Mr. Charles Turner, of Slough. Mr. John Reeves, of Acton, showed a large group of decorative plants in excellent condition neatly arranged in panels

in which Mignonette, Lily of the Valley, crimson Fuchsias, Gardenias, Heliotropes, and pot Roses were well represented. A batch of pink Hydrangeas was also very showy, and the same may be said of a well-blended bank of fancy and other decorative Pelargoniums, single Tulips, double white Chinese Primroses and *Spirea japonica*, to which an irregular line of tall Palms and white Arum Lilies made a most effective background. Messrs. Hawkins and Bennett, Lily Gardens, Twickenham, sent a large group of pink, white, and scarlet Zonal Pelargoniums, bushy little plants in 6-in. pots, and remarkably well-bloomed. A panel in this group was effectively filled with clusters of cut Pelargonium flowers, white, rose, and scarlet, set in a bed of fresh green Moss and Maiden-hair Fern. Another large bank of Dracenas, Palms, and Ferns, brightened up with *Cytisus fragrans* and *Spirea japonica*, was a noticeable feature in the show. Messrs. G. Beckwith & Son, of Tottenham, exhibited a bank of decorative Pelargoniums about 30 yards in length and 10 ft. in width; it contained several hundred of well-grown plants, all in 5-in. or 6-in. pots, and consisting of fancy, double, and show kinds, a little variety and fragrance were afforded by a group of Heliotropes, among which were several dark purple and desirable sorts for cut blooms. Messrs. Hooper & Co., Central Avenue, Covent Garden, contributed a choice collection of Palms, Ferns, and other fine-foliated plants in excellent condition, and from the same exhibitors came a collection of dried Grasses and Immortelles, in the form of well-arranged wreaths and bouquets.

Floral Decorations.—Bouquets were limited in number, and the quality was scarcely what might have been expected from Covent Garden. The best were shown by Mr. James Bromwich, Buckingham Palace Road, whose bride's bouquet was one of the most tasteful and artistic productions which we have seen. It consisted of white Camellias, buds of the Tea Rose *Niphetos*, Lily of the Valley, double white Chinese Primulas, Stephanotis, Orange blossom, and white Bouvardia, the whole fringed most delicately with Maiden-hair. Two or three sprays of the foliage and unopened buds of the Fairy Rose were introduced with excellent effect. Mr. Bromwich's ball-room bouquet was also a tasteful combination; for this and the one just named a silver medal was awarded, and they were also highly commended. Messrs. Walter Wood, Parmeley & Co., Albert Gate, Knightsbridge, also received a silver medal for two well-arranged bouquets, but they were too large and contained too much Fern. Mr. T. A. Dickson received a bronze medal for the best bouquet of any kind; he sent three well-arranged examples, composed of Tea Rose, *Niphetos*, white Lilac, orange flowers, Heath, Stephanotis, Orchids, and other choice flowers, fringed with Maiden-hair Fern. Mr. J. Aldous furnished a well-arranged vase of white Lilac, and forced Solomon's Seal, a spray or two of *Pteris serrulata* being used with excellent effect, the whole being fringed with *Selaginella*, and *Isolepis gracilis*. Mr. Aldous also sent three bouquets of choice flowers. Messrs. Walter Wood, Parmeley & Co. had a tastefully decorated set of dinner-table vases; and Mr. W. Stone, Covent Garden, sent three bouquets of Roses, Orchids, and other choice flowers.

Fruit and Vegetables.—A fine collection of imported and home-grown fruit came from Messrs. Webber & Son, of the Central Avenue, Covent Garden, who furnished among other things a basket of Easter Beurré Pears from California, of good size and not only in a perfect state of preservation, but delicious in flavour. Associated with these were also clusters of Bananas from Madeira, large, clean, and perfectly ripe; Blood Oranges from Valencia, and ordinary Oranges from the same port, together with Mandarin Oranges from Sicily; large and highly-coloured, conical Shaddocks from the West Indies; six smooth-leaved Cayenne Pines, two being of home growth and four from the Azores; between these the difference in shape and colour was remarkable, the English fruit being tall and pale, while the St. Michael fruit were sub-globose and of a rich orange-vermilion tint. Figs fresh and forced of course; early Beatrice Peaches of home growth; new Strawberries, large in size and of good flavour; Grapes both new and old; and a good basket of Apples made up perhaps the finest collection of fruit ever seen at this season. The Grapes consisted of new Black Hamburgs fine both in bunch and berry; White Chasselas, and Lady Downes, the latter quite plump and fresh. Messrs. Draper & Son sent Valencia and Blood Oranges, Tangerine Oranges from Palermo, Lemons, West Indian Pomeloes, Lady Apples of French growth, and Chasselas Grapes from Montreuil, rather shrivelled, but excellent in flavour. Along with these also came Easter Beurré Pears from Meaux, and Calville Blanc, Dien Donné, and Russet Apples from Montreuil, and excellent fresh Tomatoes from Toulon. The same exhibitors all showed a good collection of vegetables, among which we noticed excellent Endive, Cos and Cabbage Lettuces of French growth, Asparagus of good quality from Toulouse, both green and purple-topped varieties, and Globe Artichokes from Avignon, and the true long French Turnip of the Paris market gardens, together with excellent Cauliflowers from Angers. The Short Horn Carrot of the Paris markets, so delicious in soups, &c., was also shown by this firm, together with French Beans from Toulouse, Cardoons from Paris, and Green Peas from Mentone—the whole forming a most interesting collection of foreign produce. Mr. Poupert, of Covent Garden, sent Lettuces, Radishes, Endive, Green Mint, Early Cabbage, fresh young Onions, Seakale, Parsley, and Rhubarb, all good in quality. Mr. N. Domicille, of Guernsey, showed six baskets of Myatt's Ashleaf Kidney Potatoes, remarkably large and clear, and far superior to Maltese, Algerian, or other produce of the same kind. Messrs. Beer and Sams, Chesswood Gardens, Worthing, sent a box of Telegraph Cucumbers. Mr. R. Price, of Cookham, furnished a large box of ripe Strawberries in good condition. Mr. Matthew Newman, of Harlington, London, sent plants of a yellow

variegated Strawberry, and also specimens of a good strain of single crimson-flowered Wallflower; likewise Violets of the Russian variety, and double white and sulphur-tinted Primroses, which are grown in quantity for Covent Garden Market. Mr. W. Tilbery, gardener to the Duke of Portland at Welbeck, contributed, specimens of three late-keeping Grapes, namely, Lady Downes, Royal Vineyard, and a black variety raised at Welbeck, and said to be a cross between Lady Downes and West St. Peters. It is a medium-sized variety of vinous flavour, the examples shown being slightly shrivelled. A dish of seedling Apple, named Baron Liebig, came from Mr. James Pink, Lees Court, Faversham. Mr. H. Frond, gardener to J. Balguy, Esq., Hawley Place, Dartford, Kent, showed a dish of Early Rose Potatoes in good condition; and Mr. Wm. Rapley, gardener to R. Hindson, Esq., Clapham Common, sent a brace of Telegraph Cucumbers; and a fasciated stem of the same variety, having five good fruit, came from Mr. Bennett, Rablay.

Miscellaneous.—Messrs. Barr & Sugden exhibited several tastefully-arranged Fern and window cases, to which a first prize was awarded. Mr. Jas. Bromwich and Messrs. Dick Radclyffe had also some well-filled cases. A new saddle boiler, of improved construction, was exhibited by Messrs. McLaren & Co., 174, Upper Thames Street, E.C.; the one shown was of large size, and attracted a good deal of attention. Messrs. Waite, Burnell, & Huggins sent several examples of a new American lawn mower, somewhat similar to the Archimedean in principle, and said to work well.

ROYAL BOTANIC SOCIETY.

APRIL 18.

THIS was a better show than might have been expected, considering that one was held on the same day at South Kensington. Messrs. Veitch & Son and Mr. Charles Turner exhibited finely-flowered collections of pot Roses. Among Messrs. Veitch's plants were good examples of Madame Willermoz, Paul Verdier, Camille Bernardin, President, Duke of Edinburgh, and a fine pyramidal specimen of Madame de St. Joseph, the latter bearing upwards of fifty large blossoms. Mr. Turner furnished neatly-grown plants of Miss Hassard, Maréchal Robert, Madame Ferdinand Jamin, and remarkably fine specimens of Souvenir d'un Ami, Celine Forrester, and Madame Lacharme, the latter bearing very large and delicately-tinted flowers. Roses in pots were also shown by Messrs. Paul, the Old Nurseries, Cheshunt, who had healthy, well-flowered plants of Madame Victor Verdier, La France, Beauty of Waltham, and Cheshunt Hybrid. Two excellent boxes of cut Roses were exhibited by Mr. J. Walker, nurseryman, Thame, Oxon; one consisted entirely of Maréchal Niel, the blooms of which were large and beautifully coloured. A new Hybrid Perpetual Rose came from Messrs. Paul & Son; it was named Marguerite Brassac, and is a large, well-formed, dark crimson flower of the Charles Lefebvre type. Collections of Azaleas were contributed by Mr. Turner, Slough; Messrs. Ivery & Sons, Dorking; Mr. Wheeler, gardener to S. F. Goldsmid, Bart., Regent's Park; Mr. James, gardener to W. F. Watson, Esq.; and Mr. Ratty, gardener to R. Thornton, Esq. In Mr. Turner's collection were well-flowered plants of Duc de Nassau, Apollo, and Ferdinand Kegeljan. The plants shown by Mr. James were small, but well-flowered; the best were Iveryana, Criterion, and Eulalie. Messrs. Ivery's collection contained good plants of Stella, La superba, and Duchess Adelaide de Nassau. Miscellaneous groups of stove and greenhouse plants came from Mr. Wheeler, who also contributed a collection of Cape Heaths; amongst the latter were well-flowered specimens of Erica Victoria, E. persoluta alba, E. depressa, and E. Spenceri. Mr. B. S. Williams also showed a small group of Palms, Ferns, Crotons, and Cycads. In a choice collection of Orchids from Mr. F. A. Philbrick, Avenue Road, Regent's Park, were well-flowered specimens of Dendrobium nobile and cornuolens, Cattleya citrina, and Odontoglossum Pescatorei. Of three collections of Cinerarias the best came from Mr. James, Isleworth, who had remarkably evenly-grown plants, amongst which the best were Her Majesty, a fine purple-flowered kind, with a white centre; Attraction, rich rosy purple; and a good blue-flowered kind named Purple Gem. The same exhibitor also staged cut blooms of Cinerarias and a fine group of Cyclamens in excellent condition. Collections of hardy herbaceous plants in pots were shown by Mr. Roberts, gardener to W. J. Terry, Esq., Peterborough House, Fulham. Amongst them were Scilla campanulata and rosea, Trillium grandiflorum, Primula cortusoides, Anubria purpurea, and Dielytra spectabilis, all in good condition. Of Amaryllids two collections were shown. Messrs. Veitch & Sons contributed a collection of new plants, amongst which were two new Crotons, viz., C. McArthurianum and C. variable; Caladium Fairy Queen, a silvery-leaved kind with bright green edges; Coleus multiflorus; Gloxinia, Mr. Gladstone, Lord Derby, Duchess of Edinburgh, and Sir John Lubbock; all excellent kinds well worth culture. Mr. B. S. Williams showed a new Croton named Prince of Wales, a graceful-habited kind with orange-spotted leaves having reddish veins. Mr. Roberts exhibited a new *Hæmanthus* named Terry, the flowers of which are bright scarlet with yellow-tipped anthers. Mr. J. Ivery showed a plant of *Pteris serrulata cristata gracilis*, a variety with graceful, drooping, crested-tipped fronds. Mr. Turner, of Slough, showed a dozen *Auriculas* in pots; the best amongst them were Charles Perry, a large, purplish-blue flower with a clear white centre, and Munstrel, a dark velvety flower with a yellow centre. Mr. Ford, gardener to J. G. Megaw, Esq., Upper Norwood, contributed two finely-flowered specimens of *Clerodendron Balfourianum*.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

THE PETIT TRIANON IN SPRING.

It is like the escape from a desert into a flowery land, leaving the repressed and tortured and starved trees, and many inanities of the large gardens at Versailles, and entering those of the gardens of the Petit Trianon. The trees are no longer paralysed, mutilated, or starved, but healthy giants; they inspire one with awe and admiration, while those we have just left give rise to pity and annoyance. The Pines of Europe attain great size and dignity, and so do the leafless trees. In April, when the tall Cherry trees are seen here and there among evergreen and Ivy-clad old trees, the effect is beautiful. The charm, however, of the Petit Trianon exists all the year round, though there are few sweeter times than the present, when the tender leaflets are swarming out into the warm air, and many trees are tasseled with catkins. The Grass is long, green, and pleasant, and, happily, walking on it is not "forbidden," like so many things in France. Housemaid gardening has not quite deprived it of Cowslips and Ladies' Smocks, which abound in the Grass. When shall we cease to mow and mutilate the sweet flowers that love to grow in the Grass? Mowing machines and razors are needful things, but one may have too much of them. I have just been reading in the "Débats" that M. Thiers shaves himself every morning with unerring firmness of hand at eighty. It is sad to think of the time and energy and soap the great man must have wasted in this exercise. Sadder still is it to think of the eternal shaving of lawns and slopes with the mowing machine; many of these might be bright with lovely flowers in early spring. Natives of our own and other countries would be most happy in the Grass, which might be cut once or twice a year without injuring their foliage; as we have seen so many give up or modify the desperate use of the razor, so no doubt we shall some day see a wisely modified use of the mowing machine and the scythe. There are thousands of primly shaved acres in pleasure-grounds from which flowers might be gathered and Grass cut that are now shaved close every fortnight. A carpet is pleasant to the feet, but we do not want carpets everywhere. Pictures, for example, are better still, and these in gardens may be on the Grass. Here it is pleasant to see many groups gathering Cowslips and Daisies in the Grass; there are no sentinels to prevent this, and one is pleased to see liberty so far realized as to permit of the gathering of Cowslips in the public gardens of France. But though France has no soldiers to guard the Trianon Cowslips, there is one at the gate, and a melancholy heap of Cowslips and Daisies tells how he has made all the happy people part with their treasures.

A fine effect is to be seen just now in the gardener's garden at the Trianon: it is afforded by a number of fine old specimens of the early Magnolias in the full majesty of their blossoming. They sometimes stand up boldly out of clumps of American plants and the like. The contrast between two such dissimilar types of vegetation tells well; the flowering trees are seen to advantage, and the pudding-like masses relieved. A noble specimen of the pyramidal Oak is fine here even in its wintry dress. This gardener's garden is most interesting and varied, and is charming in summer and autumn; I have never seen a king's garden so pretty. At one end there is a huge Orangery quite covered with a Wistaria, which will soon be a vast curtain of graceful bloom. V.

THE SCHOOL OF HORTICULTURE AT VERSAILLES.—The old *potagerie* is being gradually changed into what promises to be a good school for gardening. As we write many of the wall trees and tall espaliers are in bloom. A more beautiful sight has rarely gladdened the eyes of fruit growers. Some of the walls are furnished from top to bottom with trees, and many espaliers are models of beauty and health. In other parts of the garden remains of a less desirable state of things are to be seen, but on the whole there is much reason to be gratified with the present condition of the garden.

NOTES OF THE WEEK.

NANTHOCERAS SORBIIFOLIA.—This new shrub figured in THE GARDEN (Vol. VIII., p. 521) is now blooming vigorously in the Paris Garden of Plants. We have never noticed so much bloom on the branchlets of any other shrub. In England this shrub will form a valuable addition to those blooming about the 1st of May.

THE ASH-LEAVED MAPLE IN SPRING.—I know nothing among the varied aspects of spring even in gardens more beautiful than old specimens of this tree in spring, when it is curtained with its slender, tapering tassels of flowers. It is scarcely necessary to add that this is the green form of the now well-known variegated Maple. I have lately seen a good many old specimens in flower, and they are the most striking trees in the grove at present.—V.

BRUNFELSIA AT KEW.—Numbers of these free-flowering stove plants are now remarkably showy in the Palm-house at Kew. They are arranged at intervals along the side stages, and each bears from sixty to seventy large purple or white-scented, salver-shaped blossoms. Associated, as they are here, with other flowering and ornamental-leaved plants, small Orange trees, &c., they have a fine effect.—C. M.

AKEBIA QUINATA IN APRIL.—Of all my botanical curiosities, so to say, this proves the most interesting. I have it trained over an arch in the garden wall, and just now half hidden among its delicate, twining shoots and elegant leaves there are numbers of quaint but beautiful chocolate-purple flowers. The young shoots have a similar hue, and are springing out in the most charming manner.—V.

A NEW *PHALANOPSIS*.—A very distinct new species of *Phalanopsis* (*P. fasciata*) is now flowering in Mr. Bull's nursery at Chelsea. It has thick leathery leaves, and bears its flowers on a spike 5 in. or 6 in. in length. Each individual bloom is about 1 in. in diameter, the sepals and petals being of a pale yellow or honey colour blotched and streaked with brown. The lip has two erect, fleshy, lateral lobes at its base, the central lobe being oval in form with thickened margins, and having a smooth ridge down the centre. Without being showy, it is an interesting little plant, especially just now when new species of *Phalanopsis* are so rare.—B.

TETRATHECA ERICOIDES HIRSUTA.—Several plants of this little hard-wood greenhouse shrub are now finely in flower in Messrs. Rollisson's nursery, Tooting; its deep rosy-purple blossoms are produced in great abundance even on small plants, and they are much more effective than those of the species. Plants of this *Tetratheca* may be grown with comparative ease, all they require being good sandy peat, a light, airy situation, and abundance of water when in active growth.—S.

ABUTILON VEXILLARIUM.—This *Abutilon* forms a striking object in spring on the roof of a greenhouse or conservatory. A large plant of it used in this way in a house at Kew is now bearing a profusion of drooping tubular blossoms, which, being of a showy red colour, tipped with orange, and associated with abundance of finely variegated foliage, are very effective, a condition in which this plant will probably remain during the greater part of the summer.—J. C.

GESNERA HENDERSONI.—This new *Gesnera* is now blooming freely in the Pine-apple nursery. Its leaves are deep green and the flowers brilliant scarlet—colours which contrast well with each other. To early-blooming plants this will be found to be a useful addition, inasmuch as it continues in blossom in a cool house for several weeks together in spring, when bright-coloured flowers are in greatest demand.—C. S.

PASSIFLORA QUADRANGULARIS VARIEGATA.—Most people are acquainted with the green-leaved form of this beautiful free-flowering stove or rather warm greenhouse climber, but the variegated variety of it is seldom met with. Trained up the roof of the Palm-house at Kew may now, however, be seen a large plant of it with leaves profusely blotched with golden-yellow; therefore, even when not in flower, this variety produces a good effect. It is not so luxuriant as the ordinary *Grauvilla*, and therefore better suited for houses the roof-room of which is limited.—J. K.

GOLDEN ONCIDIUMS.—*Oncidium*s are apt to weary even the most earnest lover of flowers by their sameness of yellow and brown; happily, however, all *Oncidium*s are not so depressing in this respect, and three of the most beautiful, namely *O. varicosum*, *O. Marshallianum*, and *O. concolor*, are just now flowering in Messrs. Veitch's nursery at Chelsea. *O. varicosum* is neat in habit, having speckled, two-leaved bulbs, and bearing gracefully-drooping panicles of pure golden flowers, 1½ in. to 2 in. in diameter, each individual flower being as pure in colour, and as perfect in form, as the most exact florist could desire; *O. Marshallianum* is scarcely so perfect in form, but it is a distinct in colour, and is one of the most showy of all the species;

O. concolor is dwarf in habit, bearing short drooping spikes of soft yellow flowers, which remind one of those of *Burlingtonia fragrans* in size and form. Apart from their purity of colouring, the above species are especially desirable, since all possess the habit of blooming profusely in a small state. They do not absolutely require an Orchid-house in which to grow them, but may be successfully cultivated in a warm plant stove along with Ferns and fine-foliaged plants, and they deserve a place wherever choice and distinct tropical flowers are appreciated.—B.

PANCRATIUM SPECIOSUM.—A specimen of this Amaryllid is now very attractive in the Palm-house at Kew. It bears several flower-spikes, each of which is surmounted by a large umbel of pure white funnel-shaped flowers.—S.

PHOTINIA SERRULATA IN FLOWER IN OXFORDSHIRE.—I have never heard of or seen this plant flowering elsewhere in Britain. It began showing flower-shoots here last autumn, and they have been gradually increasing ever since, but I fear this last frost has injured them so much that the blossoms will not open, and I even find that they are dropping off. The plant is on a south wall, and measures 1 ft. one way and as much the other.—A. MACFARLANE, *Great Yew, Enstone.*

DENDROBIUM DENSIFOLIUM.—A specimen of this showy Orchid at Kew has lately borne some twenty large drooping clusters of flowers. An some of the spikes could be counted nearly forty beautiful golden blossoms. In Mr. Day's collection a plant of this *Dendrobie* is reported to have produced nearly 100 clusters of bloom at one time.—W.

WEST INDIAN PINE-APPLES.—A consignment of these has thus early arrived in Covent Garden Market, where they are now selling at from 1s. to 1s. 6d. each. It need scarcely be added that in quality they are much inferior to the Pines that come from the Azores, but, being cheap, are useful for preserving or for candying.—B.

ODONTOGLOSSUM ROEZLI ALBUM.—Several plants of this lovely *Odontoglossum* are now flowering freely in Messrs. Veitch's nursery, Chelsea; their blooms, too, individually are unusually large, some of them measuring from 4½ in. to 5 in. in diameter. They are of the purest white colour, and, on that account, very useful in bouquets and other floral devices. When more plentiful this will doubtless prove to be one of the most serviceable *Odontoglossums* in cultivation.—C.

IMPORTED VEGETABLES.—Large quantities of Green Peas are now being received in Covent Garden from the warm and sheltered parts of France, and also from Algeria, whence they are consigned by way of Paris; and during the past week we have noted gangs of Pea-shellers almost as busily engaged in that work as in the summertime, when English-grown Peas are abundant. It is, too, a noticeable fact that the French Peas are far superior to those that come from the warmer climate of Algeria. The succulent Long White Turnip of the Paris market gardens, together with salad vegetables, is also now being sold by auction daily in large quantities. French and Channel Islands Asparagus is abundant, and comes packed in flat lath boxes 2 ft. wide, 15 in. deep, and about 3 ft. in length. A few Globe Artichokes and Cardoons come from Marseilles, and now and then a batch of fresh, though as yet pale-coloured, Tomatoes.—B.

THE FLAMINGO-PLANT.—The scarlet-spathed *Anthurium Scherzerianum* is now so well known in all good gardens that it would appear almost superfluous to make further allusion to its already acknowledged good qualities. In the Royal Exotic nursery, Chelsea, however, we have just seen a line of large specimens—say twenty or thirty plants at least—occupying the front bench of a house devoted to tender Arancarias, Palms, Aralias, and other dark green-leaved plants, and the effect so produced is one of the most distinct and striking we have ever seen. It is one of those imperial plants which does not kindly brook a rival, and never looks better than when seen in association with bright and varying greenery. This is shown by the tawdry appearance of floral decorations in which its spathes are introduced, and if any other flower be associated with it for effect it must be its relative, the white Arum Lily.

NATIONAL AURICULA SHOW.—The exhibition of Auriculas held at the Crystal Palace on the 24th inst. was in every way, thanks to the exertions of the honorary secretary, a most successful one, about 1000 plants being exhibited, and the majority of them in really excellent condition. The Auricula is, we believe, the only true Alpine plant which has hitherto become popular as a florist's flower, its culture dating from 1582, the year in which Clusius introduced *Primula auricula* and the natural hybrid *P. pubescens* from the Tyrolese Alps into Belgium, from whence it must soon afterwards have been introduced to old English gardens, inasmuch as several varieties are figured and described by Parkinson in 1629. Professor Kerner, of Innsbrück, who has made a special study of the Alpine

Primroses, names *P. pubescens* as being the original parent of the cultivated *Auricula*, *P. auricula* proper being the parent of the "Alpine" race. Auriculas of all kinds are so rich and variable in colour, and may be so successfully grown in the smallest garden, that their culture is to be recommended, and the exhibition, to which we allude more fully elsewhere, has done good work in bringing so charming and variable a flower into more prominent notice.—B.

Larvæ of Daddy Long-legs.—This destructive little pest is unusually abundant this spring. I found no fewer than eight yesterday morning at the root of my only plant of *Wulfenia Amhersti*, which it is needless to say they had destroyed. They remain close to the collar of the plant just beneath the soil, and goaw off the leaves and shoots at night. I found several *Calochorti* planted out in a pit gnawed off in this way yesterday, and thought at first it was the work of a slug, but on turning up the soil with my finger the culprits were at once discovered and instantly killed. I do not think they often touch the bulb or root of the plant itself, but they graze off every leaf and blade and shoot as clean as if eaten by a sheep.—H. HARPUR CREWE.

Leaves for Garnishing Fruit.—Some kinds of leaves are more suitable than others for this purpose. Strawberries, for instance, look best associated with their own foliage; Grapes may be laid on their own leaves, but there are others which suit them quite as well. One of the best plants for furnishing leaves for garnishing all kinds of fruit is the Curled Mallow, an annual of which I make three sowings in the year in rich soil—the first early in April, the second about the beginning of May, and the third about the same time in June. The leaves are about the size of small Vine leaves, and beautifully frilled. Wherever fruit has to be garnished, this plant should always be grown. The Ice-plant also furnishes good leaves for summer garnishing, its glistening, icy appearance having a cool and pretty effect on the table. It should be sown in a pan or box, in heat, in the first or second week in April, and planted out in the open border in May. These are the only plants which I grow for garnishing fruit in summer and autumn. In winter and until this time variegated Kale and Bay leaves answer the purpose. Bay leaves are rather stiff for Grapes, but for Oranges, Apples, &c., they may always be used with good effect.—A NORTHERN GARDENER.

Senecio saracenicus.—I should not recommend any one to grow this plant in a garden; it is no doubt very handsome when in bloom, but next to *Symphytum caucasicum*, which is equally pretty, it is about the worst weed that can be cultivated. It increases with almost miraculous rapidity, and simply chokes out everything else. It is easily naturalized on the banks of streams and ponds, where it forms a very handsome object, and any one who will take the trouble to introduce it into his local flora will be conferring a benefit upon the neighborhood. Can any one furnish me with a small plant of *Senecio paludosus* and *Cineraria palustris*, two very handsome plants, once fairly common in the Fen districts, but now, alas! in consequence of drainage and cultivation almost extinct? I am very anxious to try and introduce them into some swampy ground bordering on the large reservoirs in this neighbourhood. I shall also feel greatly obliged to any one in whose neighbourhood *Orchis militaris* grows, if he will send me a couple of tubers, as I wish to grow it in my garden.—H. HARPUR CREWE, *The Rectory, Drayton-Beauchamp, Tring.*

Seedling Daisies.—Until this spring I had no idea that so many pretty plants could be obtained from a packet of double Daisy seed. True, nearly the whole of the seedlings are white, and a proportion are only semi-double, or showing the eye so clearly as to render them valueless. But some are exquisite in form, and if not so large as might be expected, yet they are as double as could be desired. One or two pure white kinds promise to make good bedding varieties, as the flowers are produced on stiff foot-stalks and in great profusion. One selection I have named Snowball, the flowers being very white and exactly resembling miniature *Pompone Chrysanthemums*. Some of the plants produce pretty rose and pink tipped flowers, and will make lovely masses. In all I have been enabled to make up a collection of twenty distinct sorts.—A. D.

Spring Flowers for Vases.—*Helleborus fœtidus*, with its light green, drooping flowers, which remain fresh in water much longer than those of most plants, looks well in vases mixed with Holly berries, or early spring flowers. The very dark green leaves of this *Hellebore* contrast well with its flowers, the disagreeable smell belonging to which goes off when placed in water. *Ornithogalum nutans* in blossom this month also looks well in vases; it has a peculiarly soft, silvery tint, and the white inside the flower being half transparent, the green stripes outside partly show through it. It blossoms well, and for a long time, when put in water, and has a fine effect when mixed with pan or Apeunne Anemones.—O.

THE FLOWER GARDEN.

LILY INSECTS.

(CRIOCERIS MERDIGERA).

CULTIVATORS on the Continent are familiar with a little insect of a vermilion red colour, which is found in summer upon the different species of Lily and allied plants, such as the Crown Imperial. It is found in England, too, especially in the London district, upon the common white Lily; but here it is so few in number that it is more likely to be sought for on account of its beauty than for its destruction as an injurious insect. It is a Crioceris, which has been named by entomologists *Crioceris merdigera*, and it feeds on the leaves of the Lily. The female lays her eggs under the leaves in little heaps of from five to six. The young larvæ leave the eggs at the end of a fortnight; as soon as they begin to walk they place themselves side by side, and eat resolutely onwards. After the first casting of skin, they disperse in different directions over the leaves, above as well as underneath; then they attack them sometimes at the ends, sometimes at the sides, often even they pierce them through the centre, and when the leaves fall they throw themselves upon the stalks. These larvæ are lazy, and give themselves little movement, only changing their places when a leaf is half devoured.

The larvæ by the end of a fortnight attain their full growth; then they enter the earth to metamorphose themselves into nymphs. The perfect insect is hatched a fortnight later; those which transform themselves into nymphs in the autumn pass the winter underground until the beginning of spring. It is not difficult to keep the ravages of this species within bounds. The little heaps of greenish dirt under which the larvæ live are sufficiently conspic-

uous and the larvæ are easily removed by hand-picking—so is the perfect insect; so that really there is no excuse for any one having his plants disfigured by them. A. M.



Crioceris merdigera on the common White Lily.

LILY BULBS.

"F. W. B." says, alluding to his sketch of my Lily "seed-bud" (see p. 268):—"It will be seen at a glance that it (the seed-bud) is nothing more than one of the axillary buds which exist at the base of each scale in nearly all Lily bulbs." Now, may I ask if he will undertake to cut up three bulbs, and, before he cuts them, describe, as I did, where and at what point he would be sure to find, in all the three bulbs, the axillary buds to which he alludes? Or can he prove that a bud, of any description whatever—no larger than a canary seed in January—will grow up to a full-sized bulb and bloom freely the next year? I think I may venture to say he cannot. And yet the legitimate seed-bud, which is every year found in its own place, will do all this, and more; for if the culture happen to have been liberal, it will often grow a much larger bulb, and flower much more luxuriantly, than the parent bulb did the year before! Now as to *Lilium candidum* being an evergreen. At page 268, "F. W. B." says:—"Danedin again asserts that *Lilium candidum* is no more an evergreen than any other species, whereas the reverse of this is a well-known fact to every Lily grower, seeing that the plant bears green leaves nearly all the year." "F. W. B." is wrong in saying, "it is a well-known fact to every Lily grower"; because some Lily growers know as well as I do that *L. candidum* is not an evergreen. Be this as it may, however, let us put aside mere assertions and see what experiment and examination can do for us. Every Lily

cultivator may be said to be acquainted with the external appearance of the bulb of *L. candidum*; but there are few comparatively who are well acquainted with the economy of its interior. When lifted in autumn, the outer scales of the parent bulb are found to be tier upon tier of an imbricated lanceolate character, the outer or lower tier of scales lapping somewhat more than half-way over the next tier, and so on until the upper tier is reached. But we have now to speak more particularly of the inside. If a plump bulb that has bloomed be taken up as soon as the leaves at the points begin to decay (not later) and cut in two vertically, that is, right down through the vertex and axis of the bulb, we shall have presented to our view a section of the new bulb (within the old one), which is, or was, destined to flower during the next season. At this early period the scales of the new bulb will be seen to be placed the one tier over the other, but in a manner the very reverse of those of the parent bulb; that is to say, the innermost scales, next the axis, will be seen to be the shortest, the next tier completely overlapping them, and so on tier upon tier, the outer scales reaching from a somewhat solid fleshy base to the top, where they meet, leaving a very slight orifice at the apex. These scales, numbering from five to eight on each side of the axis, counted on the sectional face, enclose in their centre the undeveloped flower-stem, which, with the aid of a magnifying glass, will be seen to be richly covered with very minute leaves. These leaves grow up and push themselves aboveground before the winter commences and a considerable time before the main stem itself appears. If the halves of the bulb be placed on a table in a dry room where they can have

the benefit of the sun, the drying system will in a few days cause the soft, pulpy parts to dry and contract, and so make the fibrous parts of the minute leaves to stand out in such relief as to be noticeable by the naked eye. These leaves, which have led to the mistaken idea that this Lily is evergreen, are simply the barbingers or precursors of the flower-stem itself, and are annually generated in the very infancy of the new bulb, and are peculiar, as far as I can learn, to this Lily alone. This is clearly demonstrated if we lift bulbs of *Lilium croceum* and *L. bulbiferum* and dissect them in the same manner. I mention these Lilies for this reason—that they are cheap and can be replaced at very little expense. *L. bulbiferum* and *L. croceum* agree very nearly with one another, but they differ from *L. candidum* in this singular peculiarity, namely, that merely scales are found on their rather long axes, and no leaves as in *L. candidum*. The same difference is observable in *L. auratum*, *L. speciosum*, and other Lily bulbs. We now come to the second part of this experiment, which is of no less importance than the first. From the time the first bulb of *L. candidum* has been taken up and cut in two, as directed, until the bulbs of the same species are seen to be pushing their leaves above the ground, another plump bulb of *L. candidum* must be taken up every week or ten days, and cut in two in the same manner, in order to observe the progress the new bulb and its leaves are making. It should here be impressed on the mind of the experimenter, that if the bulb taken up has not flowered during the past season, the experiment will be a failure. When examining the bulb for the purpose of marking the progress which the new bulbs and its leaves are making, do not overlook the process of decay which the old or parent bulb is undergoing. This is all-important, in order to decide the question at issue. While the new bulb is growing, the contents of the parent bulb are being gradually absorbed by the new bulb, and as the remains of the old bulb are no longer requisite when the former has attained its full growth, all that remains of the parent bulb dies off completely. If this be carefully observed, and the parts constituting the new bulb, and those belonging to the old bulb, be marked off distinctly, it will be seen to be proved, beyond a doubt, that all vitality in the old bulb has ceased to operate, and that it is a new and distinct bulb, which every year pushes up the leaves above the ground before the

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winter sets in. The author of "Notes on Lilies" says:—"It is impossible either to deny or accept 'Dunedin's' statements as facts." This being so, may I ask him to favour me so far as to give these remarks his best consideration, as I feel sure his object must be the same as mine, viz., the advancement of Lily culture. DUNEDIN.

ALPINE FLOWERS AT YORK.

NOTWITHSTANDING the inclemency of the weather, the Alpine flowers on the rockwork at York are really beautiful. *Primula pulcherrima*, which is growing freely, is producing large globose heads of lilac-purple flowers, and the individual blossoms are so closely packed together that it would be almost impossible to thrust in even a pin's point without touching the flowers. *Primula marginata* is just putting forth its lovely bluish-lilac flowers. Then there are the Anemones: *A. blanda* is just over, but the white and blue flowers of *A. apennina* are in full beauty. Associated with the latter on a shelving bank exposed to the south are *Omphalodes verna*, common wild Primrose, wild Wood Anemone (*A. nemorosa*), and self-sown patches of *Myosotis dissitiflora*, altogether forming a beautiful and lovely combination. *Anemone fulgens*, on another part of the rock-garden, is very brilliant. I also noticed several varieties of *A. hortensis*. *Primula spectabilis*, with its deep green, entire leaves and trusses, composed of large, deep violet-purple flowers, borne on slender, brownish-purple stems from 2 in. to 4 in. high, is likewise strikingly pretty. The little Ranunculoid-like Anemone (*A. ranunculoides*) is a pretty and desirable plant, for although the flowers are not quite so large as those of the wild Wood Anemone, yet they represent a colour among Anemones with which we cannot afford to dispense, the flowers being bright yellow. It appears to thrive best when planted in damp peaty earth slightly shaded from the mid-day sun. *Aubrietia græca superba*, almost smothered with flowers, hangs in sheets from the crevices of the rocks. This is a decided improvement on the old *Aubrietia græca*, the colour of the flowers being so much deeper. *Tulipa Greigi* is a fine early-blooming plant, and one which has proved to be quite hardy. I ought not to omit *Anemone vernalis*, a beautiful little Alpine plant now in flower; it produces lovely, delicate, silky buds and pure white blossoms, borne on shaggy stems not more than from 4 in. to 6 in. high: its leaves are deep, shining green in colour, and they remain on the plant throughout the year. *Cardamine trifolia*, with its snow-white flowers and deep green leaves, is also a pretty object in shady nooks on rockwork at this season of the year. I noticed several roots of *Lilium giganteum* pushing upwards with no small amount of vigour. They are planted in an artificial bog, in which the American Blood-root (*Sanguinaria canadensis*) appears also to be quite at home, and to flower freely. The same may be said of *Primula cortusoides amœna*. A short distance from the rock garden I noticed in flower *Trillium atro-purpureum*, a plant which I believe is as yet rare; and there was one little gem which I must not overlook—it was *Soldanella minima*, flowering in a small pot, its delicate little solitary blossoms resembling miniature bells; its pretty little leaves, too, are worthy of notice, so small and yet withal so green and rigid.

R. P.

THE CARNATION AND PINK.

THESE have been cultivated as garden flowers from very early times. In rich or in wet soil, both the Carnation and Pink are short-lived; but in dry situations—as, for example, on a rockery—they will grow and flower profusely for a length of time. As regards propagation, layering is the plan usually adopted, and operations for the purpose begin about the beginning of August, or a couple of weeks earlier in cold localities. About that season the plants have ceased flowering and made their growth, and the layer sown made of the young shoots. The first and preliminary step is to prepare a compost, which should consist of clear river sand mixed with its hulk of leaf-mould and loam together. This should be spread round and under the branches of the plants to be layered about 4 in. thick, and the layers must be pegged down into it, and covered about an inch deep. In layering the shoots the leaves are removed up to about the third or fourth joint, and the knife is inserted from the fifth joint, and run up to the next one, cutting the shoots about half through. This forms a tongue on the cut side, which must be covered a little below the joint to which the incision has been carried, and the shoot should then be bent so as to make the cut gape, and in that position pegged securely into the compost. A layered Carnation shoot may be described as a cutting half removed from the parent plant; the slitting up to a joint is made with a view to facilitate the rooting process without depriving the cutting of the support of the parent

stem in the mean time. In this way the shoots of the plant are layered all round, and the hillock formed by the compost is afterwards packed between the shoots with smooth, round stones, each about 3 lb. or 4 lb. in weight, in order to keep the birds from scraping the compost away, which they are sure to do if they can reach it, in hunting for worms, &c.; water-worn stones from the bed of a river are best for the purpose. In a month or five weeks after layering, if the plants have been watered regularly during dry weather, they will be rooted, and they should then be lifted and potted, and planted out in the borders where they are to remain. In most gardens where the stock is propagated annually in this way, the plants are potted in 6-in. pots, and wintered in cold frames, the pots being plunged in ashes to protect them from frost; and in spring they are planted out, the old plants being thrown away. Whether potted or planted out in beds after rooting, the best staple for the Carnation and Pink is a good loam, free from wireworms, and it may be mixed with leaf-mould and sand; but they will thrive in common garden soil well enough. When wintered in frames, it is necessary to give the plants plenty of air on all favourable occasions, as the Carnation does not thrive in a close atmosphere. Anything like fire-heat must of course be avoided; and if the frost should be severe, mats or straw should be used for protection. During the summer the plants should be watered in droughty weather, and they must be guarded against rabbits and field mice, which are fond of them; but these vermin are most destructive during winter. When the flower-stems grow, they should be supported singly with small neat stakes, or two or three stakes may be put round each clump, and the matting run round the whole at once, to keep them from falling upon the ground. Some cultivators go to great trouble in disbudding, trimming, and otherwise manipulating the flowers; but here it is only discussed to give the reader an idea of how to grow the Carnation as a border flower, and it is not needful to refer to such practices. J. S.

TULIPS DURING WET AND WIND.

NOTWITHSTANDING the promising appearance of Tulip beds generally, cultivators of these flowers are having an anxious time of it. Heavy showers and the almost constant covering of the beds necessary to prevent them from being saturated with water, cannot fail to be prejudicial to the well-being of the plants. Some beds are already beginning to present a deteriorated appearance; the foliage is becoming pale green, and the stems of the plants drawn, owing to the absence of the strengthening influence of the sun's rays. In covering a Tulip bed the main framework should be a fixture, but the canvas covering should be removable at will. During the winter and early spring months, semi-circular iron hoops, placed on the beds and covered with mats, are employed to ward off frost and heavy rains; but when the plants begin to grow vigorously, a stage is requisite, in order to afford airiness and space, and at the same time suitable protection to the plants. The canvas ends of the stage may remain closed, but the walls or screen, or rather sides, should be fastened to a roller at the bottom, which, by means of a pulley, can be rolled up to the ridge or lowered, as may be desired. By this means air and light can be given to the bed on either side, or both, when it is requisite to do so. Directly a shower of rain or hail threatens, the top should be lowered, and it will be advisable to do this every night when the plants approach blooming; the side cloths should be of very thin canvas—cheese cloth is recommended by some, as it keeps off the sun, and at the same time permits a free circulation of air. As soon as the blooms show colour, direct sunshine should be excluded, but the plants may have all the air possible. Rough winds, whether from the east or west, must be guarded against, a recommendation which specially applies to those who grow a few Tulips in the open air without protection of any kind. When looking over such a bed a few days ago, immediately following the occurrence of blustering east winds, there could be seen several plants having only one leaf, in all probability all that would be made this season—and some of these were nearly snapped off. The loss of this leaf will prevent the bulb from blooming next year, while, if it can mature it, it will be so helped thereby as to be strong enough to flower the following season. It is therefore well to give such plants the support of a stake, tying the leaf securely to it; the labour is by no means wasted, and perchance a fine bloom will repay the operator a year hence for his timely care of the plant at a critical moment. D.

Double Blue Hepatica.—I have found no difficulty in the culture of this, although I had some difficulty in obtaining it at first. A somewhat shady position, with a good admixture of peat in the soil, suits it admirably. There is the greatest difference in all Hepaticas, according to the culture which they receive. They should

be grown in shady, sheltered spots, where the foliage will be preserved evergreen to protect the flowers and young leaves when they push up. I was first made aware of this by some plants which I brought home from Lake Como, which, being carefully sheltered, put forth blooms nearly double the size, and of a more intense blue than those in the open border. The earliest to flower is the double red Hepatica, then come the blue, the white, the single pink, and last of all the double blue.—SALMONICERS.

Variiegated Japanese Honeysuckle and its Uses.—This Honeysuckle when grown under certain circumstances is certainly one of the handsomest-leaved plants in cultivation. It does well on a wall or on a tree as is shown (see p. 322). Last summer I saw it used effectively in the winter garden at Southport in a basket from which its long shoots hung down gracefully: it does well also as a fringe for baskets on lawns, and I have likewise seen it used effectively as an edging for flower beds, a position in which it has to be often clipped, and I should add that it would show its variegated leaves to the best advantage in soil not over-rich. As regards coverings for trees, we have here a variegated Ivy upon an old Willow tree, the stem of which is quite covered with the Ivy, and it has a very ornamental appearance the whole year round.—R. M.

Hardy Caeti.—I agree with Miss Kingsley in the belief that Caeti are more hardy than is generally supposed. When in America I saw vast areas of the plains inhabited by them, which plains were covered with snow in November; colder still must their hill-homes be. I have also noticed species in cultivation thrive well, especially when the succulent "leaves" are protected from injury. When the foliage of a plant, or what answers to it, is perennial as in Caeti it is most important to so place it that it may be safe from various injuries, quite apart from those of climate. The best place for Caeti would, as a rule, be on well-drained ledges and fissures in the rock garden. I, however, have noticed the Opuntias quite at home on the level ground, but never so well as when they were protected by a wire cage from being trampled on or injured by tools, &c.—V.

Bedding Plants and Spring Flowers Intermixed.—Small beds of *Scilla sibirica* with borders 8 in. or 10 in. wide of *Narcissus* minor were very effective here last month. Some spring bulbs, and roots which die down in summer, such as those of Squills, Anemones, double Jonquills, and *Narcissus poeticus*, we only take up about every third year in order that the beds may be dug and the soil enriched. This is done as soon as the plants have gone out of blossom, and they are replanted at once. Summer bedding plants are put in without disturbing the spring flowers, and they do quite as well as those planted in empty beds. When they are taken up in the autumn, the beds are heavily top-dressed, especially those filled with Squills and Anemones. Thus treated, these spring flowers seem to do much better than if they were transplanted every year; none of the bulbs are lost. *Scilla sibirica* sows itself when left undisturbed. One bed of Anemones has *Verbena venosa* growing through it, and in summer a few plants of Mangles' *Pelargonium* planted through it makes "Beaton's shot-silk bed" without any further trouble.—NORTH WALES.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Iris Chamæiris.—This pretty little Iris, now in blossom, is valuable from its rich yet delicate yellow colour. It is only a few inches high, and blooms abundantly.—V.

Ranunculus millefoliatus.—This is a charming little Buttercup with finely divided leaves and large yellow flowers. It grows quite freely on the level ground, and is hardy. It likes a free sandy soil best.—J. H.

Delphinium nudicaule.—This is a true perennial with me, at least upon rockwork. A strong tuft of it is now pushing up for the fourth time in the same dry, sunny position. It is very apt to be lost in borders, as the young leaves are very like those of a Buttercup, and apt to be destroyed as weeds.—SALMONICERS.

Anemone fulgens and other Wind-flowers.—It is marvellous to find how long and how superbly *Anemone fulgens* continues to bloom, more than three months having passed since its first flowers expanded. Can as much be said of any other early spring flower? The pretty Double White is following close on the heels of *A. apeunina*, and the three make a delightful bed. These Anemones are not nearly so well known as they should be.—D.

Primula cortusoides amena alba.—Can any of your correspondents inform me how to properly treat this Primrose? Last year, for the sake of variety, I secured a dozen plants of it which were treated exactly the same as *P. cortusoides amena*, but from all of them I have only obtained one solitary spike of flowers and that a poor one, consisting of only three blooms, the colour of which was white with a green stripe down the centre of each petal. This failure is unaccountable, as all my plants of *P. c. amena* are in excellent condition, several of them in 6-in. pots bearing twelve spikes of blooms with an average of eight blooms on each spike, each as large as a half-crown. For several years I have experienced perfect success with *P. c. amena*, but have never grown the white variety before. Is it worth growing?—H. HARRIS.

THE FRUIT GARDEN.

INFLUENCE OF TIME OF PRUNING PEAR TREES ON SEASON OF BLOOMING.

I AGREE with Mr. Baines' remark (see p. 272) that it is to be regretted that such an important practical question as this should have been so little discussed. Possibly the somewhat unceremonious manner in which the views which I advanced on the subject have been challenged, may have deterred other cultivators from expressing their opinions on the subject. All the views advanced (see p. 151) have been considered as unworthy of credence, and it has been taken for granted that the time of pruning has really no perceptible influence on the time of blooming. I reiterate that it has; and my faith in the correctness of my deduction is based upon the careful observations and the experience of many years, aided by the old doctrine familiar to all cultivators, though recently formulated under the new name of the conservation or concentration of vital force. Now Mr. Baines' facts and cases, so far as they may be accepted, go to establish the potency of the time of pruning on the season of blooming. The general and concurrent testimony of nearly forty years points in the same direction, and a tolerably successful practice of over a quarter of a century in the culture of hardy fruits has been moulded and shaped in accordance with the fact of a close relation subsisting between periods of pruning and times of blooming. I have, therefore, a right to repudiate hasty assertions on insufficient grounds, and to state that if any mistakes have been made, my conclusions have been arrived at as the results of almost a lifetime devoted to the observation of facts, and interpreting as best I could their true significance and meaning.

The theory of the concentration of force repudiated by Mr. Baines in its relation to Apples and Pears, though fully admitted in relation to other trees and shrubs, also favours my views. Granting that some of the difference at least claimed by Mr. Baines between a Rose tree and a Pear exists, it must still be admitted that vital force is diffusive and divertible, as well as concentratable. Sap will, in fact does, flow in almost any direction and to any point where there is the freest outlet; consequently there is no insuperable physical difficulty in fluids passing from fruit-buds into wood-buds, or *vice versa*. If such a diversion of sap be possible—and few vegetable physiologists will be found to deny it—then the analogy between the effects of the late pruning of Roses or Peaches that bloom on the current year's wood is closely allied to the effects of early or late pruning on the fruit-buds of Pears, and Mr. Baines's arguments, based on the essentially different effects on the two, fall to the ground. Mr. Baines seems to forget that there are other attractors or expenders of sap besides the fruit-buds. Each wood-bud is engaged in the same or similar functions—for they may not be quite identical, though physiologists assure us that in the earlier stages the functions of fruit and wood buds are identical. Granting that they are similar, can it be contended that no difference is made to the season of growth—whether the buds or growing points of a tree be few or many? No doubt the numbers affect the time as well as the intensity, or force of growth. Even the positions of the growing points have an important bearing on the times of growth. In general terms, and, as a rule, the higher up upon the trunk, or branch, or twig, the earlier the bud opens. This alone explains most of the facts adduced by Mr. Baines, and shows them to have no necessary bearing on the point under dispute. The fact, for instance, of tall, unpruned orchard trees, flowering at the same time with more dwarf trees grown round the quarters of a kitchen garden and pruned closely every year before Christmas by no means proves that the time of pruning of the latter did not accelerate their bloom. I should say distinctly that it did, otherwise the two sets of trees would not have bloomed simultaneously, but the tall orchard trees would have bloomed a week or ten days in advance of the more dwarf and probably also more horizontal trees. The vertical direction, and even the additional height of the tall orchard trees, and their different character, account for all the facts given by Mr. Baines without leaving anything to the credit of his theory

that the season of pruning has no influence on the time of blooming. No fact can be clearer than that of the possibility of concentrating vital force by pruning. Full half the success of all our practice is based on the fact that by limiting the areas of vital force we augment its strength or intensify its energy. The vital force of trees is like that of horse power or drawing force of a steam engine. It is a given quantity. Divide it among a thousand, and each will have little more than a half of what they would have had had it been apportioned to five hundred. Admitting that the analogy is by no means an identity, inasmuch as each growing bud may to some extent create force as well as expend it, yet it holds good to show that by reducing the number of buds we concentrate vital force. It is so in a degree with buds, or else the whole system of dis-budding, as well as of pruning, is fallacious in theory and useless in practice. Mr. Baines, indeed, contends that the buds, and especially the fruit-buds, take the initiative in growth; his exact words are:—"The first efforts at growth occur in the fruit-buds themselves, and these are wholly influenced by the temperature of the air and the direct action of the sun's rays." In a preceding sentence he asserts that the roots are inactive, or rather passive, merely acting as channels, and making no extension until some progress is made in leaf development. Accept such a theory in its entirety, and all pruning must perforce be mischievous and a hindrance to growth. Each bud cut away is an active factor or modicum of force removed, and pruning becomes synonymous in its loss of power to the blowing off of steam from the locomotive. But this view of the origin of vital force cannot be sustained; on the contrary, roots are often abnormally active during what is called by a figure of speech the dead season; as a fact, there is no such season to any living plants. Even the leaves of Pear trees fall, not at the languid or sluggish bidding of death, but by the vigorous impulse of the new and growing life of the coming race of buds. These expand and fill up all through the winter, unless arrested by the forcible grip of cold, and the roots have a full share in their filling and furnishing. Instead, therefore, of speculating about which part the root or top starts first—it is much more true to assert that neither ever stops growing. The buds continue to become fuller of good things until they can no longer contain themselves, and consequently they burst into beauty. The roots never cease in their labours of collecting, conveying, and straying out for yet richer and further supplies. The resting of the roots is a figment of the imagination, of which a mere cursory examination at any season of the year, from January to December, would convince the most sceptical. Not only are the roots active, but the fluids are also in motion, and the motion of the fluids is in an upward direction, and though they may travel slowly, yet they will surely reach their destination—the buds—which any one may readily discern who examines the fruit or wood buds in November and March respectively, a period when the semi-dormant roots are supposed to have lain inactive. But, admitting that the powers of furnishing the buds and preparing for a start in the spring have been going on all the winter, it is surely obvious that if half or three-quarters of these buds had been pruned off in November, that so much the more sap would have been available for the remainder, which consequently would have been the sooner filled and started into growth. I do not affirm that all the vital force would have been directed to the remaining buds, but undoubtedly a sufficient amount of it to have exerted an influence on the time of blooming. No doubt the warm air and the sun have also a potential power in the matter, but other conditions being the same, the fewer buds, and the sooner the reduction was made in the autumn, the sooner they would be likely to open in the spring; for bud-growing is an affair of root filling and furnishing as well as of solar influences.

Mr. Baines' account of the two Pear trees that grew side by side, and flowered at the same time, after one had lost its head in a storm and the other had escaped unhurt, must have a passing notice. Here was a case of severe top-pruning in December; now let us see what happened and what difference this tremendous pruning made in the time of flowering. It made none—therefore the point is settled for all time. The Pear tree may be pruned when you will and it will flower all the same whether it is pruned or not. But I submit that

this case proves nothing but the vertical flow of the sap, which has already been adverted to. The wrecked tree, considering that only a few of the lower boughs were left, ought to have flowered several days or a week after the neighbouring tree that escaped. That it bloomed simultaneously with the uninjured tree proves that early and severe pruning did hasten its blooming, and, indeed, is a vivid illustration of the soundness of my views. The subsequent conduct of the tree, the larger size of the fruit, &c., all tend to establish the unmistakable truth of the theory of the concentration of force. Again, the simultaneity of the time of flowering in the two Pear trees, one of which was thickly studded with fruit-buds, and the other but sparsely furnished with the same, proves little to the point, inasmuch as the tree with few fruit-buds may have the more leaf-buds; and I contend that sap is divertible, and that, moreover, it will flow in any direction where there is an active outlet, no matter whether it is a fruit-bud or a leaf-bud. It is also a fact that the more fruit-buds the fewer leaf-buds, and *vice versa* as a rule; hence the mere difference of the numbers of fruit-buds may have little or no effect on the time of flowering, though on exactly the same principle thinning of such buds would probably accelerate it. What may be termed unnatural fertility may also have something to do with the precocious opening of the fruit-buds in trees studded with the same, for it must be remembered that fertility in excess is almost synonymous with weakness, and weakness is ever in haste—whereas strength mostly displays its power in a more leisurely manner.

D. T. FISHER.

— Although some make the date at which winter pruning is performed a point of great importance, I do not attach much value to such dates, simply because there is so little pruning required in trees that have been properly attended to as regards summer pinching and stopping, that the cutting away or retaining of so small a portion as it is generally found necessary to remove, can affect but little the hastening or retarding the growth in the entire tree. I am of opinion that the roots of deciduous trees are much more active when the leaves are falling than when the buds are bursting into leaf and flower.—J. GROOM, *Henham*.

When to Start Late Grapes.—This is an important matter, to which I am pleased to see attention directed (see p. 292); for nothing is worse than starting Vines at a wrong time. This not only leads to much extra anxiety, but also to extra expense. For instance, when the Vines have been very late in starting, the Grapes have to be ripened with fire-heat in autumn, and if this be imperfectly accomplished, then fire-heat has to be used nearly every day as long as the Grapes hang on the Vines, in order to keep them from rotting. On the other hand, when late Vines are started into growth early, it requires, as a rule, a great deal of fire-heat to prevent them from being checked in their growth until sun-heat is strong enough or the atmosphere warm enough, both day and night, to obviate all danger. Mr. Hinds recommends (see p. 184) starting late Vines "not later than the first week in February." This I consider nearly two months too early; Vines started then would be in their tenderest stage of development in March, and this, as a rule, is a most trying month for Vines in such a condition, and besides, the fire-heat that would be necessary to keep them growing from the end of January until the beginning of May would be a matter so expensive that few would care to incur it. "Chef" (see p. 292) comes nearer the mark when he recommends starting about the beginning of March; but even if left until two or three weeks after that, no bad results would occur. I have proved over and over again that both late and early Grapes may be thoroughly matured in six months after the Vines were started into growth. Vines started into growth the first week in April will ripen their fruit by the end of September, and this is quite as early as late Grapes are wanted in the generality of cases.—A NORTHERN GARDENER.

The Weather in North Notts.—An unprecedented rainfall of 22.03 in. has been registered here in six months, viz.:—October, 1876, 2.91 in.; November, 1876, 3.59 in.; December, 1876, 6.05 in.; January, 1877, 4.29 in.; February, 1877, 2.55 in.; March, 1877, 2.64 in.; total, 22.03 in. The rainfall in April is likewise much above the average, for up to this date (the 23rd) 2.65 in. have fallen. From the continued sodden state of the soil vegetation is very backward in this district, but there is now a prospect of a change for the better, as the wind has shifted from the north-east into the south, and the tem-

perature has risen considerably during the last few days. Gooseberry and Currant bushes are in full flower, and should frosts keep off there will be good crops, judging by the appearance of blossoms. Of late years crops of these fruits here have been injured by spring frosts two years out of three. Pears, Cherries, and Plums are likewise showing abundance of blossom-buds, which are now about opening, and should the fruit set well, heavy crops may be expected. Apples being late in flowering stand a still better chance of setting well, and they likewise promise to produce good crops. Apricots, Peaches, and Nectarines have plenty of fruit set here, but the trees on walls being protected with glass coverings are independent of the weather.—WILLIAM TILLERY, *Welbeck*.

Watering Strawberries.—Wherever Strawberries are forced, either in large or small quantities, April is generally a productive month, and much may be done towards increasing both size and flavour by a judicious use of the watering-pot. Drought and unhealthy root-action are sure precursors of red spider; but dryness at the root or in the atmosphere is not the sole cause of red spider—we have had one or two small batches of plants here this season which lost a large percentage of their roots through being saturated with applications of strong liquid manure, and I can safely say that such a crop of red spider I have never seen in all my experience as these plants produced, and yet I dare say the man who attended to these Strawberries had made up his mind that he would have both large fruit and clean foliage. Want of experience often leaves painful traces behind it. The strength of all liquids should be carefully tested on a few plants before all are subjected to their use. It is indispensable at all times and under all circumstances that the health and condition of the roots should be well understood by whoever uses the watering-pot. It may also be as well to observe (for the sake of the inexperienced) that a careful examination of the drainage will furnish some guide as to the strength at which the liquid should be applied; when perfect, the strength of the liquid may be increased with advantage, but where worms have interfered with a clear passage for water, considerable care should be taken in preparing and applying whatever liquid is used. What may be termed clogging soon reduces the power of the feeding roots to a minimum, and in the end impedes all chance of a clean healthy crop. We examine the bottoms of all pots before they are placed in the forcing houses, and we do what we can in all cases in which there is an appearance of the drainage being choked up. Flat-bottomed pots should not be employed in Strawberry culture; they do not allow the water to escape freely, and stagnant water (especially if it be liquid manure) soon rots the roots and induces ill-health: lifting the pots occasionally is as good a way of testing their condition as to drought as the more common one of tapping their sides, and it enables one to note whether the young feeders are peeping out from amongst the corks—a sign that the roots inside are in a healthy state. How people can recommend saucers, turf-trays, and similar appliances for Strawberry culture I cannot understand, unless the condition of the roots is not ascertained as often as it should be.—W. HINDS, *Otterspool*.

Variety in Oranges and Lemons.—A correspondent of the "English Mechanic" writes as follows on this subject:—"The firm with which I am connected uses a great many Oranges and Lemons. The kind of Orange employed is generally that called the Seville, a well-known sour or acid kind. Among them are frequently found what are called sweet Oranges; also among the Lemons some are found destitute of sourness, and even somewhat sweet. I had considered that these phenomena could be explained by the two kinds of each having been produced on different trees; but this year the Lemons have quite dispelled that idea—for we have found Lemons with some divisions of the fruit sweet, and some sour. The Lemons came this year from Messina. We meet with curious monstrosities at times. As one of them, I may instance that a small Lemon is sometimes found inside a large one. [Lindley and others agreed long ago that the Citron, Orange, Lemon, and Lime are all cultural descendants or sports of one botanical type or species, viz., *Citrus medica*, which was cultivated in the East thousands of years ere the Orange found its way to Southern Europe. The readiest way of accounting for the vagaries alluded to above is to assume that they are partial reversioners towards the different kinds from which they have descended.—ED.]

Beurre de Jonghe Pear.—This is comparatively a new Pear, a late one, and one of very great excellence. The Rev. G. Kemp first submitted examples of it to the Fruit Committee of the Royal Horticultural Society in 1875, when it was unanimously awarded a first-class certificate. It is a Pear that seems well suited to the climate of this country, which many of the Belgian Pears are not. The fruit is of medium size, of a true pyriform shape, very regular and even, tapering to the stalk, which is short and fleshy, inserted a little on one side, and always presenting the appearance of having been broken off. The eye is small and open, nearly level with the surface of the fruit. The flesh is greenish-yellow, very buttery and melting, with a fine rich flavour, and slightly perfumed. This fine Pear ripens during the month of January, and is equal in flavour to the best

of the earlier varieties. It is a valuable acquisition, and ought to be in every collection.—"Florist."

THE CALIFORNIAN ELDER.

(*SAMBUCUS CALIFORNICA*).

WHITE and Black fruited forms of the common Elder tree (*Sambucus nigra*) not unfrequently find places in outlying shrubberies and woods, and the Scarlet-fruited kind (*S. racemosa*), a native of the south of Europe, is very ornamental in warm, sheltered localities; but the species represented in the annexed woodcut, though one of the most floriferous of all, is seldom met with either in our own tree nurseries or on the Continent: it is a native of the Southern United States and of California. M. Carrière informs me that it has been recently introduced into French gardens, and moreover,



Californian Elder (*Sambucus californica*).

that it is a very ornate and desirable small-flowering tree, blooming from the middle of May till frosts set in. It is more graceful in habit than the Common Elder, and its numerous terminal and axillary corymbs of white, agreeably odorous flowers give it quite a distinctive character. It may be readily propagated by means of cuttings or layering, and young plants are well adapted for shrubby borders, as they flower freely when only a few feet in height. B.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Melon-beds.—Those who have to grow their Melons in ordinary garden frames on beds of fermenting material, and who have not at command a plentiful supply of hot manure, should not commence operations too early in the season, but a bed should now be made up in which to turn out the plants raised from seeds some weeks back. To succeed well Melons require more warmth at the root even through the summer than Cucumbers; consequently, it will be advisable to make a good substantial bed 4 ft. or 1½ ft. in depth, of well prepared manure, with, if obtainable, a plentiful addition of leaves, as this, with the assistance of the increased sun-heat, will keep up sufficient warmth until the plants have made considerable progress. See that the soil for the bed, if too wet from exposure to rain, is placed under cover where it will dry sufficiently before putting in the frame; use nothing but ordinary loam, if of a strong, heavy nature, all the better, for Melons, unlike Cucumbers, do not require manure in the soil.

Cucumbers.—During the recent cold, windy weather, Cucumber beds into which the plants were placed some time ago will be likely to have become too cold. Where this has occurred at once apply linings of fresh manure, 3 ft. in width and well surrounding the frame. It is much more economical, in both labour and material, to commence with substantial linings than to do the work piecemeal. As the roots of the plants appear through the surface, add soil which has been kept for a day or two up against the sides of the frame till it has become warm before placing it in contact with them; do not make it over-rich by the addition of too much manure. When Cucumbers are over-stimulated in this way it frequently causes them to become diseased, and as the soil gets exhausted any manurial assistance they require can be administered to them by means of manure-water. See that the plants are regularly syringed every afternoon, otherwise aphides and red spider are almost sure to make their appearance. As the weather gets warmer, and the plants come into a strong bearing condition, many people are under the impression that it is unnecessary to use tepid water, yet such is by no means the case: many failures in Cucumber-growing are attributable to the neglect of this precaution. Water should always be administered at a temperature of 70° or 80°, and even if 10° or 15° higher no harm will ensue, but rather be an advantage. Vegetable Marrow seeds should now be put in; place them singly in small pots, as by this means, when potted on, there will be no disturbance of the roots.

Herbaceous Borders, Shrubberies, &c.—Now, when deciduous trees and shrubs are bursting into leaf, and numerous herbaceous plants are coming into flower, the grounds should be made neat and orderly. Any protecting material, such as straw or Fern, that has not been removed, should be cleared away from Pampas Grass, Tritomas, or any subject that has been similarly protected. Any herbaceous borders that have not yet been dug should have a few inches of the top forked over, being careful not to go too deep so as to disturb the roots, which, in the case of most of these plants, are now in an active growing condition; as the work proceeds, so break the surface with the fork sufficiently, so that it may have a neat appearance without resorting to the rake, which tends to solidify the soil in a way that prevents either sun or air acting upon it; and in a season like the present, when the ground is unusually wet, a surface evenly raked also prevents its drying properly. Take advantage of the first opportunity, when the top is sufficiently dry, to hoe shrubby ground where there is any appearance of weeds, especially Grass, which is a great deal more difficult to contend with than ordinary summer weeds, and if in existence at all in the autumn, has through the mild winter kept on growing, until in many places it almost presents the appearance of having been sown; where the soil is very heavy, and weeds are more difficult to destroy by hoeing, in some cases it may be necessary to resort to digging them into the ground, although unless there be an accumulation of Grass or weeds, I should never advocate digging amongst shrubs, as it inevitably destroys the surface-roots, which are the most essential to the plants. Do not attempt to rake off weeds that have been thus hoed up until the ground has got quite dry, or in their removal too much soil will necessarily be taken off with them.

Rose-beds, containing either standards or dwarfs, should be dug over, giving where required a good dressing of manure, which dig in as the work goes on. Dwarf Roses, that are grown on the system of pegging down horizontally the previous summer's shoots, should be so treated without delay, otherwise only a portion of the eyes near the extreme end to where these growths have been pruned back will break, leaving those near the base dormant. Amateurs who have not adopted this method of Rose growing will not be disappointed should they give it a trial, as for general decorative purposes Roses so managed are very superior to either full-sized or dwarf standards, or bushes left in an upright position, especially for beds on lawns, where their effect is infinitely preferable; but to reap the full advantages of the system, Roses so grown should be on their own roots, as then whatever growth they make in the shape of suckers is rather an advantage than otherwise, for these strong suckers make the best blooming wood for another year. Another matter to be observed in Roses thus treated is that the strongest-growing kinds are planted in the centre of the beds, gradually coming down to the sides with such as are of a less vigorous disposition; and where the weaker Tea sorts will succeed, they should occupy the outside, as also the Moss varieties, which are more low and spreading in habit than the Hybrid Perpetuals.

Lawns and Grass Verges should be well swept to remove all wormcasts, and, where necessary, rolled previous to being mown, for although most of the machines profess to roll as well as cut the Grass, yet if mowing be attempted where the ground is full of worm-casts without their being previously removed, a single operation will do more to injure the cutting capabilities of any machine than half-a-dozen mowings when the surface is free from grit. The existence of Moss on lawns is produced in two ways—a wet condition and extreme poverty of the soil caused by the exhaustion resultant from continuous mowing, and the non-supply of enriching material to enable it to afford nourishment to the Grass. Where Moss exists from the latter cause, a dressing of lime and ordinary loam (one part of the former to three parts of the latter), scattered on about 1 in. in thickness, will be of the greatest benefit in destroying the Moss and promoting the growth of the Grass. By an immediate application when the advanced season furthers more rapid growth, its slightly unsightly appearance will be of short duration. Where the sowing recommended some time ago has not grown satisfactorily, a sprinkling of Grass seeds may be put on at the same time; this renovating will be found especially beneficial under deciduous trees.

Wall Climbers.—It frequently happens that flowering plants, such as Roses, Clematises, or others that are employed for clothing walls, are indifferently trained at the commencement, by which inattention they very soon get nearly or quite bare at the bottom, making the best growth, and producing almost all their flowers at the top of the wall, however high this may be. In growing fruit trees on walls, the skilful operator is careful to train a sufficient number of strong branches low down in a horizontal position, so as to balance the growth, and to keep the bottom of the wall as well furnished as the middle and top. If the same care were taken with flowering plants, when employed for the purpose of covering walls, the subsequent effect would be much more satisfactory. Where large plants have been allowed to run up and become naked at the bottom, there is no resource but either partially or wholly heading them down. Those consisting of a few strong, and the remainder weaker branches, should have the strong ones headed down near the base of the plants, which will cause them to break out, and the shoots they produce may be arranged so as to clothe the bottom of the wall, retaining the weaker growths, which will obviate the bare appearance that results from a total cutting back. Over the walls of buildings or on those of a considerable height, a very good effect may be produced by planting Pyracantha, Cotoneaster, Pyrus japonica, and other plants of a similar character, in order to clothe the bottom of the wall with Clematises, Roses, Honeysuckles, Jasmines, Passifloras, or Wistarias to train over the top. Where any alteration is required in wall coverings, the present will be found a good time to attend to it. There is one cause through which wall plants, especially Roses, frequently suffer to such an extent as to render it impossible for them to have a pleasing appearance: this is through such insects as green fly or red spider being allowed to increase upon them unchecked. From the warmth which the wall affords, these pests generally appear upon such plants as they can live upon earlier than on those growing in an open position; and as rain has but a poor chance of effecting the removal of the insects, on account of the shelter afforded by the wall, the plants are almost wholly dependent upon the use of the syringe or garden engine for their riddance from these marauders; a plentiful supply of clean water alone, if applied sufficiently early and continuously as required, will keep the insects in check, but if a good look-out be kept, so as to detect them when they first make their appearance in spring, and a thorough

syringing be given with Quassia or Tobacco-water, it will generally be found an effectual preventive. Climbing plants that thus receive sufficient attention thrive and flower very differently from those that exist under a state of neglect.

Kitchen Garden.—In late, cold districts where the land is wet and heavy, the planting of late Potatoes has been necessarily deferred during the present spring later than usual; it should now be hurried forward with all convenient speed. In many places the soil in which the early Potatoes were planted has, through continued wet, become almost as close and solid as if it had never been dug. Where this is the case, as soon as they are sufficiently aboveground to distinguish the rows, it will be well to fork the soil over between these, but this must be done before the tops have made much progress and the roots consequently advanced far, or they will be disturbed, and their proper development seriously interfered with. Salads.—Continue to make sowings of small salad and Radishes at short intervals in rich soil, so as to promote quick growth, without which they will be tough. Sow more Lettuce now, and from this time forward in the rows where they are to be grown, so as to avoid the check they receive in transplanting from a seed-bed.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

April 30.—Potting offsets taken from old plants of Echeverias, and shifting Balsams into larger pots. Sowing Cockscombs, Celosia pyramidalis, and another crop of French Beans. Trimming and tying in shoots of creepers in conservatory. Watering recently planted Yews. Digging beds in Rose garden. Mulching Strawberries out-of-doors with short straw. Levelling Celery land for Winter Greens. Staking Hyacinth spikes in beds out-of-doors. Dusting Turnips with lime and soot, in order to kill fly. Thinning frame Carrots. Earthing up Cauliflower, and mulching Vine and Peach borders with rotten manure. Digging land for main crop of Turnips, and raking all rough flower borders. Clipping Box edging, clearing land of Winter Greens, and hoeing between all growing crops.

May 1.—Potting Dr. Lindley and Vesuvius Pelargoniums for conservatory decoration; also Musk, Celosias, and Calceolarias. Repotting Lycastes. Sowing Mignonette in pots, and another row of Sweet Peas; also sowing mixed flower seeds among Rhododendrons, another crop of Veitch's Perfection and Champion of England Peas, Spinach, and Radishes. Watering Vine and Peach borders inside houses. Making beds for sowing Cauliflower, Lettuce, and Cabbage seed. Earthing up Potatoes, and top-dressing Cucumbers. Cutting flower-spikes from Rhubarb. Stopping and tying down Vine shoots. Hoeing among herbaceous plants. Putting all Roses that have been forced into cold pits.

May 2.—Potting Caladiums, Perilla, Sedum variegatum, Capsicums, Chillies, and Vegetable Marrows. Keeping East Indian Orchid-house moist night and day, and putting top shades on Stanhopea-house. Sowing Victoria Stocks, ornamental Grasses, Clarkias, Colinusias, and Nemophilas; also Turnips among bush fruit trees, and more Spinach between newly-sown rows of Queen of the Marrow Peas on a north border. Planting Violets in beds, herbaceous plants, Myosotis, and Cerastium; also Sir Harry Strawberry plants that have been forced and duly hardened off. Pricking off Saponaria calabrica, Daisies, Stocks, and Aubrietias. Putting in cuttings of scented-leaved Pelargoniums. Refilling another pit for Cucumbers. Tying in Peach tree shoots in houses in order to expose the fruit to light and sunshine. Top-dressing inside Vine borders with cow-manure, digging land for French Beans, and watering Turnips and Cauliflowers. Tying up more Lettuce for succession, and hoeing among Cabbage and Cauliflower plantations.

May 3.—Potting off Globe Amaranthus, Lobelia, Bouvardia, Plumbago, Fuchsias, and cuttings of stove plants. Repotting Vallota purpurea, Palms, and Pomegranates, planting the latter in a leaf-bed. Shifting tree Mignonette and Celosias into 8-in. pots; also Tomatoes. Sowing another batch of Balsams, Cinerarias, Calceolarias, and Cockscombs; also a bed of Walcheren and White Cape Broccoli, Marjoram and Sweet Basil; likewise Syon House Cucumber, Legg's Melon, and a crop of Scarlet Runners. Planting Asparagus, Celery, Globe Artichokes, Vegetable Marrows, and Tomatoes. Pricking off Marigolds, Lobelias, Asters, Phlox Drummondii, and other annuals in cold frame. Putting in Pink and Carnation cuttings. Plunging Tuberoses out-of-doors. Turning manure for Celery. Syringing Muscat Vines to keep down red spider. Top-dressing Lilies in pots and plunging

them in a sand-bed close to a wall with peat and cow-manure. Filling up vacant spaces in Asparagus-bed. Earthing up Potatoes, and digging land for Parsley and Cabbages.

May 4.—Potting off *Tropeolum canariense*, Primulas, and *Scutellaria* cuttings. Shifting Standard Pelargoniums and Heliotropes into the pots in which they are to flower, and placing them in a late Vinery; also potting young Fuchsias and *Disa Herschelli*. Putting up Phalacropsis shades on north side of house, and commencing to give Dendrobies, Lycastes, and *Lælia autumnalis* more copious supplies of water. Sowing Peas in trenches which had previously been heavily manured; also a few more rows of Broad Beans amongst Currant trees. Planting Lily of the Valley and *Spiraea japonica*; also Gladioli in well-manured ground. Fertilizing Melons as fast as they come into flower, and keeping them at a temperature of from 65° to 70°. Syringing Plum trees with soft soap and Tobacco-water in order to kill black fly. Raking round Rose trees to make the ground available for sowing Mignonette seed. Thinning Apricots and Peaches. Taking up Broccoli and placing it in a cool cellar. Digging land for French Beans and Lettuces, and sulphuring pipes in Vineries to keep red spider in check.

May 5.—Sowing prickly Spinach, Parsley, Chervil, Ridge Cucumbers, Scotch Kale, White Cape, Backhouse's Winter, Surprise, Champion, and Eclipse Broccoli, and another bed of Radishes and a little Cauliflower. Planting Madame Falcot Roses. Staking and tying Pelargoniums and Clarkias; also tree and other Mignonette. Pricking out East Lothian Stocks. Thinning Muscat and other Grapes. Watering Beans, Carrots, Potatoes, Celery, and seed beds with weak guano-water. Tying Figs in house. Disbudding Peach and Nectarine trees out-of-doors. Digging ground for late Peas. Looking over Rose trees for maggot. Netting Sweet Peas to keep off sparrows. Clearing away long litter from Rhubarb and Globe Artichokes, and burning old Asparagus roots and other rubbish.

Notes on Hardy Flowers.

ASTERS.—Complaints are being made on every hand as to the inferior growth of Aster seeds. This is just what might have been expected, for the drought of last year prevented the perfect maturation of the seeds; and the German growers announced in their lists that they would have to fall back upon seed harvested in 1875. Raisers of Asters must nurse their plants to the best of their ability, and not be in too great a hurry to throw away the contents of their seed-pans. A further sowing might be made without delay. Perennial Asters, if planted out now, will soon get established. A few of the best are *A. alpinus*, *A. altaicus*, *A. Amellus*, *A. elegans*, *A. multiflorus*, and *A. pyrenaicus*. There is scarcely another flower that supplies hues of purple, violet, and blue in autumn as these Asters do, and if grafted in a good sandy loam they cannot fail to thrive.

BALSAMS.—Seeds of the main crop of Balsams should now be coming through the soil, and it is not too late to sow a little more seed for succession. To have a few plants in flower early, the leading seedlings should be potted singly into thumb pots, and grown on in a brisk heat. Many Balsams are completely spoiled by leaving the plants too long in the seed-beds; or potting them in too large pots, when they become drawn and spoilt. Unless the roots of Balsams soon find their way to the sides of the pots, the plants become lanky and attenuated. Balsams in pots require a rich soil and plenty of water.

CARNATIONS.—Plants of the perpetual or tree kinds will now be coming into full bloom, and will require to be kept free from attacks of green fly, and they should also be well watered. Those who force flowers for market like to have blooms as early as possible, but for general purposes it is desirable to have them in flower in April, May, and June. This also applies to forcing Pinks; of the latter I have lately seen Miss Gibbons, a fine pure white, and coccinea, bright scarlet, in fine condition; Derby Day and Lord Lyon, two very fine purple varieties are fast coming on to succeed them.

CARNATIONS AND PICOTEES.—Those who grow fine selections of these will now have them in 10-in. and 12-in. pots, three plants of one variety in a pot; they should for the present be protected from heavy rains, but as soon as the weather becomes settled the pots may be set out-of-doors on a cinder-ash bed. Early varieties will be making some advancement towards blooming, and the shoots will require staking. As the old foliage decays, it should be cut away with scissors, an operation which greatly improves the appearance of the plants. Any blooms thrown up from the bottoms of the plants on short stems should be removed. The surface soil to beds of Carnations and Picotees will require stirring after so much rain, and a top-dressing of rotten manure and loam mixed together will be found to be of great advantage to them.

LOBELIAS.—Seedling plants of bedding kinds should be pricked off into boxes, or beds made up in cold frames, to encourage them to grow, and also to harden them off preparatory to their being planted out in the open ground. Plants wintered in pits will now be growing freely, and may be divided if necessary. Plants of the herbaceous or cardinalis type—a class well deserving of more extended cultivation—should now be potted for blooming or planting out in a well-prepared bed. Amongst these there are now many pretty varieties, and a bed of them in flower has a fine appearance.

MINULUSES.—Plants of selected varieties of these held over from last year and re-potted at the end of March or early in April, will now be showing bloom under glass. They should therefore be fully exposed to the sun and freely watered. During hot weather a cool north house is the best place for them. Seedlings are progressing fast, and should be potted off and encouraged to grow. A bed of Minuluses is a charming sight in the open ground. True, heavy rains soon disfigure them, but a hot, sunny day quickly restores them to their wonted beauty.

PHLOXES AND PENISIEMONS.—A bed of the herbaceous Phloxes should now be made. The plants should be well established in pots before being planted out, as then they quickly root into the soil. Penstemons require to be similarly treated, and during warm, moist, growing weather, they make rapid headway.

SWEET WILLIAMS.—In many places Sweet Williams have done badly, owing to the winter having proved so wet. As soon as the weather will admit of its being done, the surface soil of the beds should be stirred, and a top-dressing of loam and manure applied. A bed of Sweet Williams, to be really effective, should have the leading shoots tied to stakes, or the wind will blow the plants about and make a wreck of many of them. The flowers of a good strain are so bold in appearance, so varied in character, and so handsomely marked, that they will repay a little extra attention at the proper time.—D.

Forwarding Asparagus.—Asparagus may be obtained a month before it is ready out-of-doors as follows:—About the middle of February place some movable wooden frames over a permanent bed of it, and with a few barrow-loads of warm manure and leaves make up a lining all round the bed, and cover its surface with dry hay. Then put on the lights and keep them closed for three weeks, when the heads will begin to appear. The hay should then be cleared off, and a little air given on every favourable opportunity. Under this treatment I cut my first Asparagus on March 20, and since that date I have cut several hundreds of beautiful heads, and still they promise to be sufficiently abundant to keep up a good supply until the outdoor crop is ready. By this plan the bed, which does not experience any disturbance, will last a great number of years, provided its produce is not cut too late. Cutting should cease and the glass be removed directly the outdoor crop is ready.—H. HARRIS, *Denne Park, Ipsham.*

Peas in Trenches.—As a precaution against drought in the case of mid- or a-on crops, I consider this a decidedly beneficial and satisfactory mode of growing Peas. Although last season was exceptionally dry and hot, our crop of Peas treated in this way was excellent. The trenches were prepared as for single rows of Celery about 6 ft. apart, with a good quantity of old Mushroom-bed manure forked into them, and, as soon as the Peas were up and staked, a good mulching of half-decayed manure was applied, by means of which one good soaking of water kept the soil moist for a considerable period. Thus managed, tall sorts, such as British Queen, No Pius Ultra, and Champion of England, continued to furnish successful gatherings quite as long as we have had them in more favourable seasons when grown on level ground. In the case of Scarlet Runners, Cantiflowers, and similar crops, some portion of the crops should also be planted in trenches as a precaution against drought.—J. GROOM, *Ilkham.*

French Beans for Winter Use.—Mr. Gilbert (see p. 271) will find the following an excellent plan for preserving French Beans for use in winter. It is a plan which has been practised here for years, and I have never known it to fail. It obviates, indeed, the necessity of growing them in pots. We use jars for the purpose similar to those employed for storing eggs, put in the jar first a layer of salt and then a layer of Beans, and so on alternately till full, with plenty of salt between the layers, so that when it becomes brine, the Beans are well covered. When the Beans are required for use, soak them in water for at least twenty-four hours, then cook them in the usual fashion. Beans for preserving should be gathered when young.—THOMAS BRUCEHAM.

—H. R. says, cut the Beans as for cooking, then place them in alternate layers of salt and Beans in an earthenware jar, finishing with a layer of salt; cover the jar to keep out the dust, but not so as to be air-tight, and keep it in a cool dry place.]

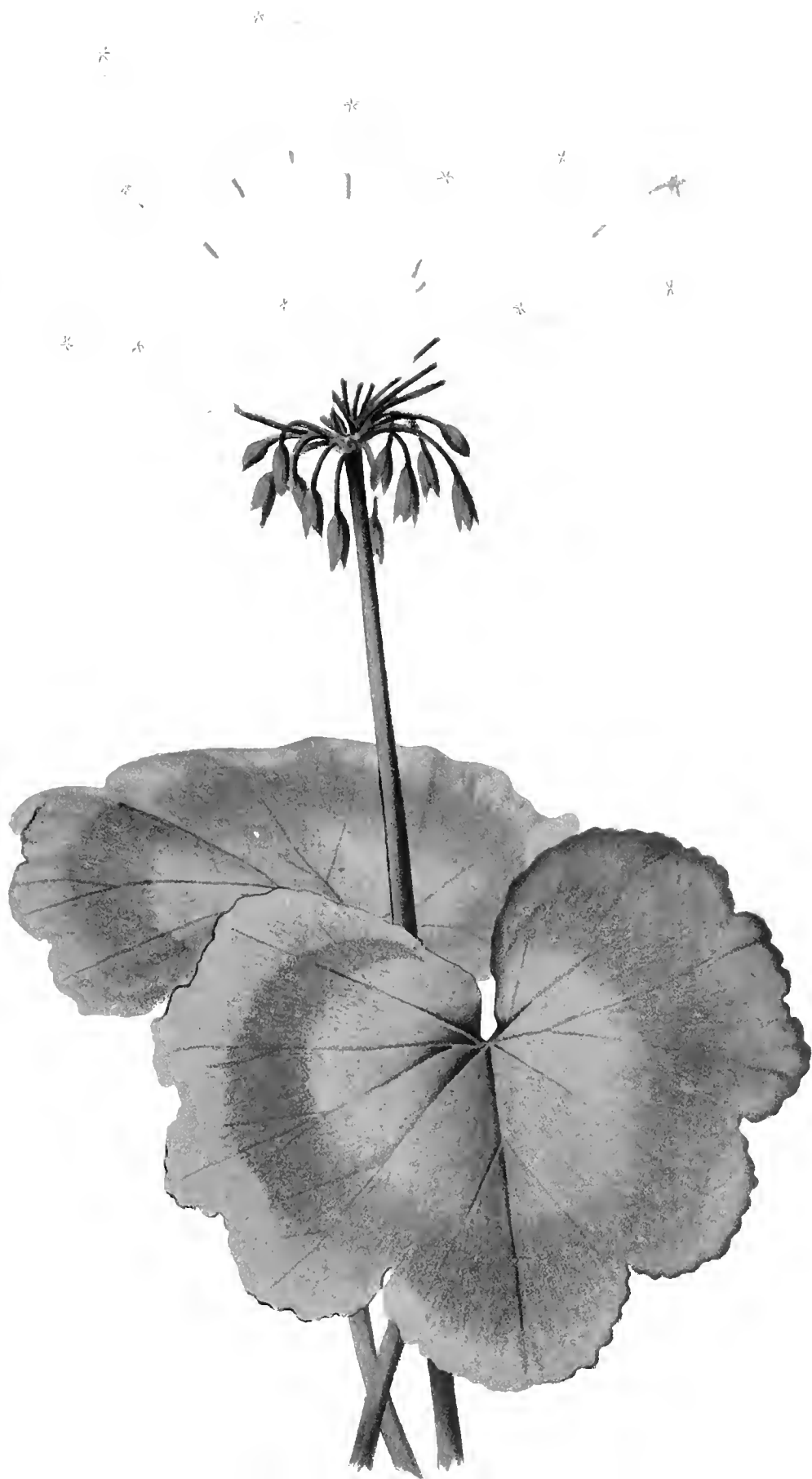
PLATE LXXI.

ZONAL PELARGONIUMS

(WITH A COLOURED FIGURE OF LEAMINGTON LASSIE).

Drawn by J. WHITEHEAD.

Few families of plants are of more importance in a decorative point of view than Pelargoniums, more particularly the Zonal or Horse-shoe section, the exceedingly diversified and numerous varieties belonging to which are supposed to be the result of blending together two closely-allied species—viz., *P. zonale* and *P. inquinans*. The former was introduced to this country about the year 1710, and the latter a few years afterwards. *P. zonale* is distinguished by the more or less dark horse-shoe mark upon its foliage, while the leaves of *P. inquinans* are plain green, and the flowers are characterised by broader petals. Few if any species of plants have better repaid the exertions of the hybridizer than these two Pelargoniums, although for several years after their introduction to English gardens no attempts, so far as is known, were made in that direction. Sir Thomas Moore, in his "Flower Garden Displayed," mentions the introduction to this country from the Paris gardens of a striped-leaved variety of *P. zonale* or *P. inquinans* as early as the year 1732, and this may possibly have been the same variety as is alluded to by Miller in the "Gardener's Dictionary," published in 1768. But the earliest record of any distinct variety of Pelargonium having originated in this country is that of Dr. Fothergill, who obtained a variety from seed to which his name was given, and it is probable that from this plant the various varieties of the modern nosegays may have been principally derived. It would, however, appear that for many years no successful attempts were made to obtain improved varieties of these plants, which were then known by the name of scarlet Geraniums, and, as the name implied, the flowers were all of that colour, with narrow petals, while the plants were of a straggling habit, with large and coarse foliage; and it is comparatively within the last few years that these plants have been so greatly improved as regards habit of growth, the ornamental character of their foliage, size of truss, form of individual bloom, breadth of petals, &c.; and the comprehensive term of zonal Pelargonium now includes varieties with flowers of all shades, from the most intense scarlet or the deepest purple, from which the blue element is not altogether absent, to the purest possible white, while in size and form the blooms are nearly all that can be desired. There are also now many beautiful varieties bearing double and semi-double flowers, which are held in high estimation by some growers, and they certainly possess an advantage over the single sorts, inasmuch as they retain their petals until the bloom withers, and this persistent property renders them exceedingly useful as regards the production of cut flowers. Although the double Zonal Pelargoniums are a comparatively recent introduction to this country, one variety at least with double flowers has long been grown on the Continent, and the late Dr. Neill, of Edinburgh, mentions having seen at Ghent a variety of *P. inquinans* or *P. zonale* with double flowers as early as the year 1817; and it is possible that it was this variety which was at a much later period introduced to this country under the name of *Triomphe de Gergovia*. Its origin, however, is unknown, and it possessed no merit as a decorative plant; but its pollen was used by M. Lemoine to fertilize blooms of the well known pink-flowered Zonal *Beauté de Suresnes*, and from this union *Gloire de Nancy* was obtained about the year 1864 or 1865, and this may be considered as the first really deserving double Pelargonium raised. Since that time many very beautiful double-flowered kinds have been raised in this country as well as on the Continent, and M. Jean Sisley, of Lyons, appears to have succeeded in originating a very distinct race of plants of a dwarf and compact habit of growth, with very large semi-double flowers of various shades of colour. He was also the first to raise a double white variety, viz., *Aline Sisley*, about the year 1872. The first really white-flowered Zonal Pelargonium with broad petals was introduced to this country from the Continent under the name of *Madame Vaucher*, about the year 1860, and this variety was for some time a great favourite. Previous to that time there had been introduced several kinds, with very



light pink-coloured blooms, with narrow petals, and of but little merit as ornamental plants, all of which were, of course, eclipsed by this variety; and although various additional white-flowered kinds have been introduced since, it may be questioned if any of them are greatly in advance of the sort just named. About the year 1848, Mr. Kinghorn, using the pollen of Miller's variegated Pelargonium, a narrow-petalled variety of unknown origin, which has been already alluded to, upon some broad-petalled Zonal sort, succeeded in originating a silver-margined or variegated variety, of great value as a bedding plant, which was well known under the name of Flower of the Day; and this was followed by numerous meritorious variegated kinds by other raisers. For many years what appeared to have been a variegated or golden-margined sport from *P. inquinans* (but as to its positive origin nothing was for certain known) might have been occasionally met with in the greenhouses, and even in the plant stoves of this country, cultivated more as a curiosity than as a really use-

introduction of a variety whose blooms are stated to be striped and flaked like the finest Carnation.

The subject of the accompanying illustration is a Pelargonium that takes a very high, if not the highest rank, in the section to which it belongs, having received a first-class certificate from the Royal Horticultural Society in July, 1876. It is the result of a cross between Louise Delsales and Master Christine; it was raised in 1875 by Mr. J. H. Hawley and sent out by Messrs. Parsons & Co., of the Ranelagh Gardens, Leamington. It is compact and robust in habit, and free-flowering, throwing well up from the plant large trusses of semi-double pink flowers. It is as free-flowering as Vesuvius, and for decorative purposes stands almost unrivalled, blooming, as it does, freely throughout the winter. Where cut flowers are in request, Leamington Lassie will be a decided acquisition, the blooms, when cut, being very persistent and good in colour.

P. GRIEVE.

Culford.



Common Hepatica (*Hepatica triloba*).



Creeping Forget-me-not (*Omphalodes verna*).



Double-flowered bulbous Crowfoot (*Ranunculus bulbosus fl.-pl.*).



Horned Tulip (*Tulipa cornuta*).



Alpine Soldanella (*Soldanella alpina*).



Early Tulip (*Tulipa præcox*).

ful decorative plant: this was known by the name of Golden Chain, and I believe that the late Mr. D. Beaton was the first to discover its value as a bedding plant, or, rather, as an effective plant for margins of beds. In the summer of 1855 I fertilized blooms of several Zonal varieties with the pollen of Golden Chain, and the result was the well-known Mrs. Pollock, the first of the race of Golden Tricolors, or variegated Zonal Pelargoniums. The very beautiful varieties known as Bronze Zonals, or Bicolors, had a similar origin. During the last few years various raisers, whose names are too numerous to mention here, but which include the late Mr. Pearson, of Chilwell, Dr. Denny, and many others, have been devoting attention to the improvement of the flowers and habit of growth of the green-leaved section of the Zonal Pelargonium. Their exertions in this respect have been attended with the greatest amount of success which could have been expected. But perfection has by no means as yet been arrived at. As each succeeding season only tends to develop new and enhanced forms of beauty, even the ensuing season will, it is said, witness the

HARDY FLOWERS IN LONDON GARDENS.

NARCISSI still make a fine display in some of the London nurseries; perhaps the most attractive kinds now in bloom are *N. Horsfieldi*, Double Sulphur Phoenix, *N. bicolor*, *N. muticus*, and the Yellow Hoop-petticoat (*N. Bulbocodium*), the latter growing in beds literally covered with bright golden blossoms borne on stalks not more than 2 in. in length; a variety of *N. poeticus* called *augustifolius* is also very attractive; its cut blooms may now be seen in large quantities in Covent Garden. Several varieties of Iris are now flowering freely, notably the Dwarf Flag Iris (*I. pumila*); *Iris biflora*, too, is putting forth a number of rich purple blossoms. Early summer Squills are now abundantly furnished with spikes of bright blue blossoms, especially such kinds as *Scilla campanulata*, *S. patula*, and *S. amona*. The Globe-flowers (*Trollius asiaticus*, *T. europæus*, and *T. altaicus*), are producing bright golden, globular blossoms in abundance, and the Blood-root (*Sanguinaria canadensis*) is also just pushing its ivory-white flowers through the soil. The Comfrets (*Symphytum*

caucasicum and album), are now laden with drooping clusters of blue, purple, and white bell-shaped blossoms, and tufts of the double-flowered Wood Anemone (*A. nemorosa* fl.-pl.) are studded with buds and blossoms on rockwork at Tottenham. Here, too, may also be found the brilliantly-coloured Tulipa Greigi, the yellow *T. sylvestris*, and the prettily striped *T. Clasiana*, all finely in bloom; *Primula denticulata* and *P. viscosa* are likewise flowering freely in favourable situations, and the Grape Hyacinths (*Muscari Heldreichi* and *M. neglectum*) are equally attractive. *Leucojum pulchellum* is furnished with multitudes of beautiful Snowdrop-like blossoms, which are very ornamental when used in bouquet or other floral devices. In addition to the above, the following are also flowering freely at Kew and other places, viz., *Orobus vernus*, *Saxifraga Webbiana*, *Lasthenia glabrata*, an annual which sows itself freely, and is among the most valuable of Composite plants for spring flowering. Associated with these may likewise be seen *Pulmonaria angustifolia* and *P. saccharata*, and *Adonis vernalis*. The white Wood Lily (*Trillium grandiflorum*), and *Trillium erectum*, a maroon-purple kind, are also in flower. *Helleborus caucasicus*, too, is bearing numbers of dark purple drooping blossoms.

THE PLANT-LORE OF SHAKESPEARE.

(Continued from p. 310.)

Eryngoos.

Falshp. Let the sky rain Potatoes; let it thunder to the tune of Green Sleeves, hail kissing comfits, and snow Eryngoos.

Merry Wives, act v., sc. 5.

Gerarde tells us that Eryngoos are the candied roots of the Sea Holly (*Eryngium maritimum*), and he gives the recipe for candying them. I am not aware that the Sea Holly is ever now so used, but it is a very handsome plant as it is seen growing on the sea-shore, and its fine foliage makes it an ornamental plant for a garden. But as used by Falstaff I am inclined to think that the vegetable he wished for was the Globe Artichoke, which is a near ally of the Eryngium, was a favourite diet in Shakespeare's time, and was reputed to have certain special virtues which are not attributed to the Sea Holly, but which would more accord with Falstaff's character. I cannot, however, anywhere find that the Artichoke was called Eryngoos.

Fennel.

(1) *Ophelia.* There's Fennel for you and Columbines.
Hamlet, act iv., sc. 5.

(2) *Falstaff.* He plays at quoits well, and eats conger and Fennel.
2nd Henry IV., act ii., sc. 4.

Like all strongly-scented plants, the Fennel was supposed to abound in "vertues," which cannot be told more pleasantly than by Longfellow:—

Above the lowly plants it towers,
The Fennel with its yellow flowers,
And in an earlier age than ours
Was gifted with the wondrous powers—
Lost vision to restore,
It gave men strength and fearless mood,
And gladiators fierce and rude
Mingled it with their daily food:
And he who battled and subdued—
A wreath of Fennel wore.

The English name was directly derived from its Latin name *Feniculum*, which may have been given it from its hay-like smell (*fœnum*), but this is not certain. We have another English word derived from the Giant Fennel of the south of Europe (*ferula*); this is the *ferule*, an instrument of punishment for small boys, also adopted from the Latin, the Roman schoolmaster using the stalks of the Fennel for the same purpose as the modern schoolmaster uses the cane.

As a useful plant, the chief use is a garnishing and sauce for fish. Large quantities of the seed are said to be imported to flavour gin, but this can scarcely be called useful. As ornamental plants, the large Fennels (*F. tingitana*, *F. campestris*, *F. glauca*, &c.) are very desirable where they can have the necessary room.

Fern.

Godshill. We have the receipt of Fern-seed—we walk invisible.

Chamberlain. Now, by my faith, I think you are more beholden to the night than to Fern-seed for your walking invisible.

1st Henry IV., act ii., sc. 1.

There is a fashion in plants as in most other things, and in none is this more curiously shown than in the estimation in which Ferns are and have been held. Now-a-days it is the fashion to admire Ferns, and few would be found bold enough to profess an indifference to them. But it was not always so. Virgil gives the Fern a bad character, speaking of it as "flicem invisam." Horace is still more severe, "neglectis urenda filix innascitur agris." The Anglo-Saxon translation of Boethius spoke contemptuously of "the Thorns, and the Furzes, and the Fern, and all the weeds" (*Cockayne*). And so it was in Shakespeare's time. Butler spoke of it as the

Fern, that vile, unuseful weed,
That grows equivocally without seed.

And later still Gilpin, who wrote so much on the beauties of country scenery at the close of the last century, has nothing better to say for Ferns than that they are noxious weeds, to be classed with "Thorns and Briers, and other ditch trumpery." The fact, no doubt, is that Ferns were considered something "uncanny and eerie;" our ancestors could not understand a plant which seemed to them to have neither flower nor seed, and so they boldly asserted it had neither. "This kinde of Ferne," says Lyte in 1587, "beareth neither flowers nor seede, except we shall take for seede the black spots growing on the backsides of the leaves, the whiche some do gather thinking to worke wonders, but to say the truth it is nothing els but trumperie and superstition." A plant so strange must needs have strange qualities, but the peculiar power attributed to it of making persons invisible arose thus:—It was the age in which the doctrine of signatures was fully believed in; according to that doctrine Nature, in giving particular shapes to leaves and flowers, had thereby plainly taught for what diseases they were specially useful. Thus a heart-shaped leaf was for heart disease, a liver-shaped for the liver, a bright-eyed flower was for the eyes, a foot-shaped flower or leaf would certainly cure the gout, and so on; and then when they found a plant which certainly grew and increased, but of which the organs of fructification were invisible, it was a clear conclusion that properly used the plant would confer the gift of invisibility. Whether the people really believed this or not we cannot say, but they were quite ready to believe any wonder connected with the plant, and so it was a constant advertisement with the quacks. Even in Addison's time "it was impossible to walk the streets without having an advertisement thrust into your hand of a doctor who was arrived at the knowledge of the Green and Red Dragon, and had discovered the female Fern-seed. Nobody ever knew what this meant" ("Tatler," No. 240). But to name all the superstitions connected with the Fern would take too much space. Its history as a garden plant is, however, worth a few lines. So little has it been esteemed as a garden plant that Mr. J. Smith, the ex-Curator of the Kew gardens, tells us that in the year 1822 the collection of Ferns at Kew was so extremely poor that "he could not estimate the entire Kew collection of exotic Ferns at that period at more than forty species" ("Smith's Ferns, British and Exotic"—Introduction). Since that time the steadily increasing admiration of Ferns has caused collectors to send them from all parts of the world, so that in 1866 Mr. Smith was enabled to describe about a thousand species, and now the number must be much larger; and the closer search for Ferns has further brought into notice a very large number of most curious varieties and monstrosities, which it is still more curious to observe are, with very few exceptions, confined to the British species.

Figs.

(1) *Titania.* Feed him with Apricocks and Dewberries,
With purple Grapes, green Figs, and Mulberries.
Midsommer Night's Dream, act iii., sc. 1.

(2) *Constance.* An' its grandam will
Give it a Plum, a Cherry, and a Fig.
King John, act ii., sc. 1.

- (3) *Guard*. Here is a rural fellow
That will not be denied your Highness's presence,
He brings you Figs.
Antony and Cleopatra, act v., sc. 2.
- (4) *1st Guard*. A simple countryman that brought her Figs. *Ibid.*
Ditto. These Fig-leaves
Have slime upon them.—*Ibid.*, act v., sc. 2.
- (5) *Pistol*. When Pistol lies, do this; and Fig me, like
The bragging Spaniard.
2nd Henry IV., act v., sc. 3.
- (6) *Pistol*. Die and be damned, and Figo for thy friendship.
Fluellen. It is well.
Pistol. The Fig of Spain.
Henry V., act iii., sc. 6.
- (7) *Pistol*. The Fig for thee, then.
Ibid., act iv., sc. 1.
- (8) *Iago*. Virtue? a Fig?
Othello, act i., sc. 3.
- (9) *Ditto*. Blessed Fig's end!
Ibid., act ii., sc. 1.
- (10) *Horner*. I'll pledge you all, and a Fig for Peter.
2nd Henry VI., act ii., sc. 3.
- (11) *Pistol*. Convey, the wise it call; steal! a Fico for the phrase.
Merry Wives, act i., sc. 3.
- (12) *Charman*. O excellent! I love long life better than Figs.
Antony and Cleopatra, act i., sc. 2.

In most of these quotations the reference is simply to the proverbial likeness of a Fig to a matter of the least importance. But, in the others, the dainty fruit, the green Fig, is noticed. The Fig tree, celebrated from the earliest times for the beauty of its foliage, and for its "sweetness and good fruit" (Judges ix., v. 11) is said to have been introduced into England by the Romans; but the more reliable accounts attribute its introduction to Cardinal Pole, who is said to have planted the Fig tree still living at Lambeth Palace. Botanically, the Fig is of especial interest. The Fig, as we eat it, is neither fruit nor flower, though partaking of both, being really the hollow, fleshy receptacle enclosing a multitude of flowers, which never see the light, yet come to full perfection and ripen their seed. The Fig stands alone in this peculiar arrangement of its flowers, but there are other plants of which we eat the unopened flowers, as the Artichoke, the Caper, and the Clove.

Filberts.

- Colibus*. I'll bring thee to clustering Filberts.
Tempest, act ii., sc. 2. (See Hazel).

Flax.

- (1) *Ford*. What, a hodge-pudding? a bag of Flax?
Merry Wives, act v., sc. 5.
- (2) *Clifford*. Beauty that the tyrant oft reclaims
Shall to my flaming wrath be oil and Flax.
2nd Henry VI., act v., sc. 2.
- (3) *Sir Toby*. Excellent, it hangs like Flax in a distaff.
Twelfth Night, act i., sc. 3.
- (4) *3rd Servant*.
Go thou: I'll fetch some Flax and white of eggs
To apply to his bleeding face.
King Lear, act iii., sc. 7.
- (5) *Ophelia*. His heard was as white as snow,
All Flaxen was his poll.
Hamlet, act iv., sc. v.
- (6) *Leontes*. My wife deserves a name
As rank as any Flax-wench.
Winter's Tale, act i., sc. 2.

The Flax of commerce (*Linum usitatissimum*) is not a true native, but it takes kindly to the soil, and soon becomes naturalized in the neighbourhood of any Flax field or mill. We have, however, three native Flaxes in England, of which the smallest (*L. catharticum*) is one of the most graceful ornaments of our higher downs and hills. The Flax of commerce, which is the plant referred to by Shakespeare, is supposed to be a native of Egypt, and we have early notice of it in the Book of Exodus; and the microscope has shown that the cere-cloths of the most ancient Egyptian mummies are made of linen. It was very early introduced into England, and the spinning of Flax was the regular occupation of the women of every household, from the mistress downwards, so that even Queens are represented in the old illuminations in the act of

spinning, and "the spinning-wheel was a necessary implement in every household, from the palace to the cottage" (Wright—"Domestic Manners"). The occupation is now almost gone, driven out by machinery, but it has left its mark on our language, at least on our legal language, which acknowledges as the only designation of an unmarried woman that she is "a spinster."

A crop of Flax is one of the most beautiful, from the rich colour of the flowers resting on their dainty stalks. But it is also most useful; from it we get linen, linseed-oil, oilcake, and linseed-meal; nor do its virtues end there, for "Sir John Herchel tells us the surprising fact that old linen rags will, when treated with sulphuric acid, yield more than their own weight of sugar. It is something even to have lived in days when our worn-out napkins may possibly reappear on our tables in the form of sugar" (Lady Wilkinson).

As a garden plant the Flaxes are all ornamental. There are about eighty species, some herbaceous and some shrubby, and of almost all colours, and in most of the species the colours are remarkably bright and clear. There is no finer blue than in *L. usitatissimum*, no finer yellow than in *L. trigynum*, no finer scarlet than in *L. grandiflorum*.

Flower-de-Luce.

- (1) *Perdita*. Lilies of all kinds,
The Flower-de-luce being one.
Winter's Tale, act iv., sc. 3.
- (2) *King Henry*. What sayest thou, my fair Flower-de-luce?
Henry V., act v., sc. 2.
- (3) *Messenger*. Cropped are the Flower-de-luces in your arms,
Of England's coat one half is cast away.
1st Henry VI., act i., sc. 1.
- (4) *Pucelle*. I am prepared; here is my keen-edged sword
Decked with five Flower-de-luces on each side.
Ibid., act i., sc. 2.
- (5) *York*. A sceptre will I have, have I a soul,
On which I'll toss the Flower-de-luce of France.
2nd Henry VI., act v., sc. 1.

Out of these five passages, four relate to the Fleur-de-luce as the cognizance of France, and much learned ink has been spilled in the endeavour to find out what flower, if any, was intended to be represented, so that Mr. Planché says that "next to the origin of heraldry itself, perhaps nothing connected with it has given rise to so much controversy as the origin of this celebrated charge." It has been at various times asserted to be an Iris, a Lily, a sword-hilt, a spear-head, and a toad, or to be simply the Fleur de St. Louis—Adhuc sub judice lis est—and it is never likely to be satisfactorily settled; I need not therefore dwell on it, especially as my present business is to settle not what the Fleur-de-luce meant in the arms of France, but what it meant in Shakespeare's writings. But here the same difficulty at once meets us, some writers affirming stoutly that it is a Lily, others as stoutly that it is an Iris. For the Lily theory there are the facts that Shakespeare calls it one of the Lilies, and that its other way of spelling is Fleur-de-lys. I find also a strong confirmation of this in the writings of S. Francis de Sales (contemporary with Shakespeare); "Charity," he says, "comprehends the seven gifts of the Holy Ghost, and resembles a beautiful Flower-de-luce, which has six leaves whiter than snow, and in the middle the pretty little golden hammers" ("Philo," book xi., Mulholland's Translation). This description will in no way fit the Iris, but it may very well be applied to the White Lily. Chaucer, too, seems to connect the Fleur-de-luce with the Lily—

Her nekke was white as the Flour de Lis.

These are certainly strong authorities for saying that the Flower-de-luce is the Lily. But there are as strong or stronger on the other side. Spenser seems to separate the Lilies from the Flower-de-luces in his pretty lines—

Strow mee the grounde with Daffadow-Dillies,
And Cowslips, and Kingcups, and lovéd Lillies;
The pretty Pawnee
And the Chevisaunce
Shall match with the fayre Flouré Delice.

Shepherd's Calendar.

Lord Bacon also seems to separate them: "In April follow the double White Violet, the Wall-flower, the Stock-Gillflower, the Cowslip, the Flower-de-luces, and Lilies of all natures."

In heraldry also the Fleur-de-lis and the Lily are two distinct bearings. Then, from the time of Turner in 1568, through Gerarde and Parkinson to Miller, all the botanical writers identify the Iris as the plant named, and with this judgment most of our modern writers agree. We may, therefore, assume that Shakespeare meant the Iris as the flower given by Perdita, and we need not be surprised at his classing it among the Lilies. Botanical classification was not very accurate in his day, and long after his time two such celebrated men as Redouté and De Candolle did not hesitate to include in the "Liliaceæ" not only Irises, but Daffodils, Tulips, Fritillarias, and even Orchids.

What Iris Shakespeare specially alluded to it is useless to inquire. We have two in England that are indigenous—one the rich golden-yellow (*I. Pseudacorus*), which in some favourable positions, with its roots in the water of a brook, is one of the very handsomest of the tribe; the other *I. (fœtidissima)*, with dull flowers and strong-smelling leaves, but with most handsome scarlet fruit, which remain on the plant and show themselves boldly all through the winter and early spring. Of other sorts there is a large number, so that the whole family, according to the latest account by Mr. Baker, of Kew, contains ninety-six distinct species besides varieties. They come from all parts of the world, from the Arctic Circle to the South of China; they are of all colours, from the pure white *Iris florentina* to the almost black *I. Susiana*; and of all sizes, from a few inches to 4 ft. They are mostly easy of cultivation and increase readily, so that there are few plants better suited for the hardy garden or more ornamental.

Fumiter, Fumitory.

- (1) *Cordelia*. Crowned with rank Fumiter and furrow weeds.
King Lear, act iv., sc. iv. (See Cuckoo-flowers).
- (2) *Burgundy*. Her fallow leas
The Darnel, Henlock, and rank Fumitory
Doth feed upon.
Henry V., act v., sc. 2.

Of Fumitories we have five species in England, all of them weeds in cultivated grounds and in hedgerows. None of them can be considered garden plants, but they are closely allied to the *Corydalis*, of which there are several pretty species, and to the very handsome *Dielytras*, of which one species—*D. spectabilis*—ranks among the very handsomest of our hardy herbaceous plants. How the plant acquired its name of Fumitory—*fume-terre*, earth-smoke—is not very satisfactorily explained, though many explanations have been given; but that the name was an ancient one we know from the interesting Stockholm manuscript of the eleventh century published by Mr. J. Pettigrew, and of which a few lines are worth quoting. (I take them from Lady Wilkinson's "Weeds and Wild Flowers"):

Fumiter is erbe, I say,
Yt spryngyth i April et (and) in May,
In feld, in town, in yard, et gate,
Yer (where) lond is fat and good in state,
Dan red is his flour
Ye erbe smek (smoke) lik in colour (colour).

Furze.

- (1) *Ariel*. So I charmed their ears,
That, calf-like, they my lowing followed through
Toothed Briars, sharp Furzes, pricking Goss, and Thorns.
Tempest, act iv., sc. 1.
- (2) *Gonzalo*. Now would I give a thousand acres of sea for an acre of
barren ground, long Heath, brown Furze, anything.
Ibid., act i., sc. 1.

We now call the *Ulex europæus* either Gorse, or Furze, or Whin; but in the sixteenth century I think that the Furze and Gorse were distinguished (see Gorse), and that the brown Furze was the *Ulex*. It is a most beautiful plant, and with its golden blossoms and richly-scented flowers is the glory of our wilder hill-sides. It is especially a British plant, for though it is found in other parts of Europe, and even in the Azores and Canaries, yet I believe it is nowhere found in such abundance or in such beauty as in England. Gerarde says, "The greatest and highest that I did ever see do grow about Excester, in the West Parts of England;" and those who have seen it in Devonshire will agree with him. It seems to luxuriate in the

damp, mild climate of Devonshire, and to see it in full flower as it covers the low hills that abut upon the Channel between Ilfracombe and Clovelly is a sight to be long remembered. It is, indeed, a plant that we may well be proud of. There is a well-known story of Linnaeus that when he first saw the Furze in blossom in England he fell on his knees and thanked God for sparing his life to see so beautiful a part of His creation. The story may be apocryphal, but we have a later testimony from another celebrated traveller who had seen the glories of tropical scenery, and yet was faithful to the beauties of the wild scenery of England. Mr. Wallace bears this testimony:—"I have never seen in the tropics such brilliant masses of colour as even England can show in her Furze-clad commons, her glades of wild Hyacinths, her fields of Poppies, her meadows of Buttercups and Orchises, carpets of yellow, purple, azure, blue, and fiery crimson, which the tropics can rarely exhibit. We have smaller masses of colour in our Hawthorns and Crab trees, our Holly and Mountain Ash, our Broom, Foxgloves, Primroses, and purple Vetches, which clothe with gay colours the length and breadth of our land" ("Malayan Archipelago," vol. ii., p. 296).

As a garden shrub the Furze may be grown either as a single lawn shrub or in the hedge or shrubbery. Everywhere it will be handsome both in its single and double varieties; and as it bears the knife well, it can be kept within limits. The upright Irish form also makes an elegant shrub, but does not flower so freely as the typical plant.—H. N. ELLACOMBE.

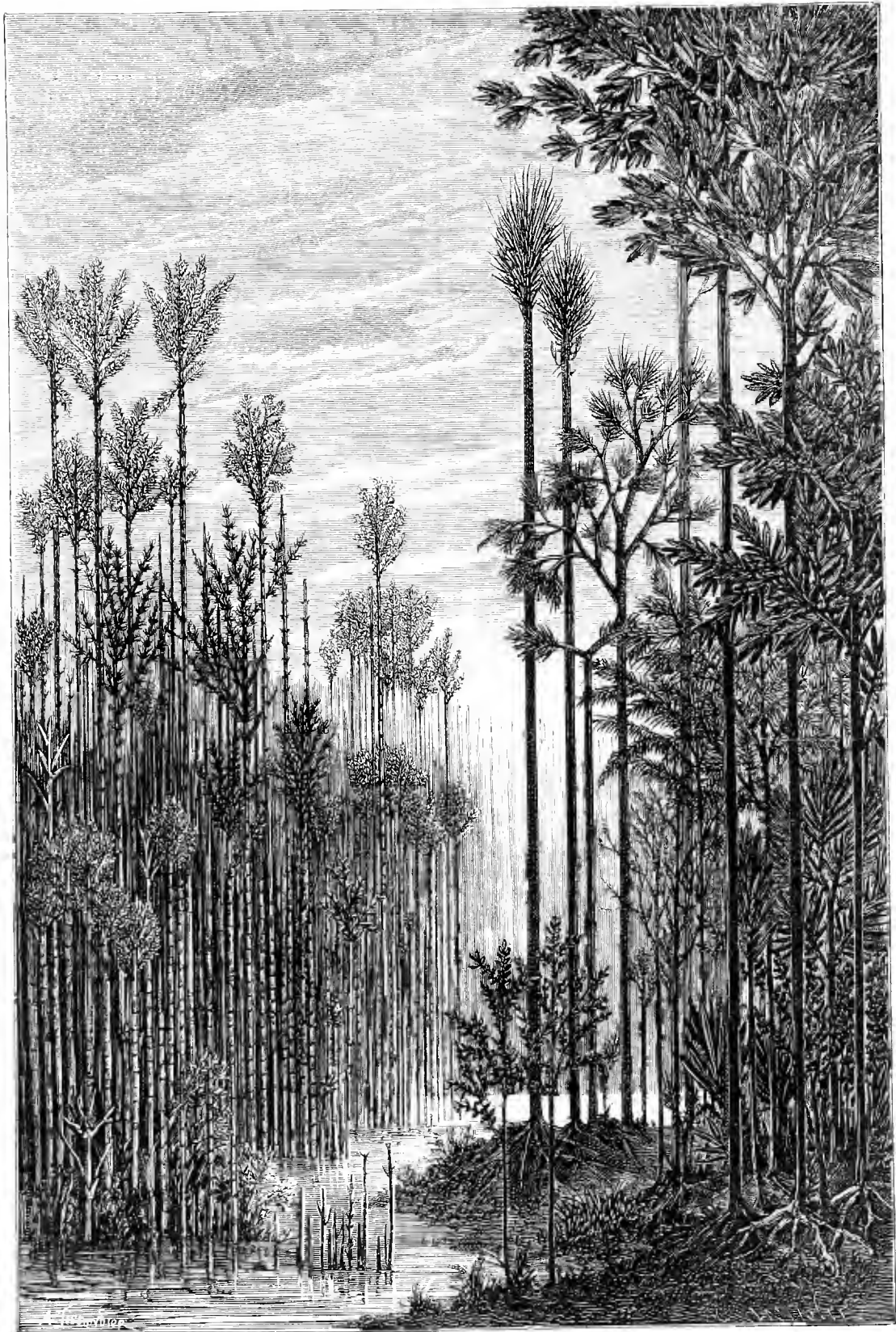
(To be continued).

FLORA OF THE COAL PERIOD.

M. GRAND'EURY has made the flora of the upper coal measures his special study, and notably those of the valley of St. Etienne. The annexed illustration, prepared from original drawings by M. Grand'Eury, gives, in "La Nature," the relative height and position of the plants, which constitute the coal vegetation of that district, consisting chiefly of Ferns, Lycopods, and Equisetums. Tree Ferns are scarce at St. Etienne, though frequently found in coal-pits in other localities. Equisetums, on the contrary, are very plentiful, and of gigantic size. Conifers, Cycads, and Palms appear to have formed the greater part of the carboniferous plants, and to have contributed immensely to the formation of coal. Towards the end of the coal era vegetation became much developed, and immense forests covering a large portion of the submerged land sprang up. M. Elie de Beaumont has made a calculation as to the amount of charcoal which our forests annually produce, and according to him this material would only make a deposit of 0.016 of a foot of coal in a century. M. Dumont has counted eighty-five beds of coal at Liège, some of which are about 2 ft. in thickness; admitting that the mean thickness of each seam would average 0.60 of a foot, the forests now in existence must continue to accumulate their substance for nearly 500,000 years before they could form a deposit sufficient to yield a bed 2 ft. in thickness. The left half of the annexed woodcut represents two species of Calamites, fossil plants of the ancient coal formation, having the general appearance of Equisetums, but sometimes attaining the height of trees; on the right, or other half, will be found Sigillarias, Lepidodendrons, and Cordaites, all plants, or rather trees, which also belong to the carboniferous era, and which, together with Tree Ferns, geologists tell us constituted at that time the characteristic vegetation of the globe.

The Paradise Stock.—I have the true Paradise stock in flower, and a very ornamental bush it is. The Doucin (a little later) is also coming into flower. There is a remarkable difference in the strength of the two kinds, the Paradise being always dwarf and compact, and the roots near the surface.—J. H.

Young Trees Best.—Planting trees of an early age, says a writer in an American journal, is productive of early and prolonged fruitfulness. We often see fine specimens of fruit growing on trees yet in the nursery row. Peach trees older than one year are worthless here. Young trees in the hands of a skillful grower can be made to assume almost any shape, which cannot be said of those of an advanced age. Young trees can be made to branch so low that neither Grass nor Weeds will grow under them on account of the shade, and I am not sure but this would be a good method with some kinds. The prolific Peach Trees in some American orchards rest their branches on the ground when loaded with fruit. However, for general culture a medium height is perhaps most desirable. [It may be added that many English fruit growers are becoming aware that it is better to plant young trees than such as have become established, after grafting, in nursery rows.—B.]



Two species of Calamites.

Sigillarias. Lepidodendrons.

Cordaites.

EXAMPLES OF THE COAL FLORA.

THE INDOOR GARDEN.

RENOVATING HARD-WOODED PLANTS.

It often happens that a collection of hard-wooded greenhouse plants gets into a bad state of health; the foliage assumes a yellow tinge, is deficient in quantity, and the annual growth made is of the most meagre and unsatisfactory description. This state of affairs may arise from various causes, such as neglect at some period of the growth of the plants, errors in general treatment, choice of unsuitable soil, &c. Such plants as Camellias, Azaleas, Acacias, Cytisus, Coronillas, Myrtles, Oranges, and New Holland plants in general, are very liable to fall into this condition, and when this is the case none of the ordinary modes of culture will suffice to restore them to their normal vigour. In order to cure a disease we must first discover what has caused it, and in the present instance the source of evil will generally be found at the root. There are two mistakes into which many are apt to fall in the culture of hard-wooded plants, viz., not giving sufficient drainage, and shifting too often or into too large pots. As the generality of plants of this description require to be placed in the open air during a portion of the summer and autumn, they are of course liable to get drenched by heavy rains, and if not pretty well established before being turned out and well insured against stagnation of water in the soil, the roots soon become inactive, the soil gets permanently sour, and a chronic state of bad health sets in, which nothing but thorough radical measures will set right. A very slight experience in the way of plant-growing will enable any one to ascertain if the root be healthy or not, but there is one unfailing test, and that is, if the plant has been a season in the pot, the soil should be well filled with fibre; if this be not the case, it may be at once concluded that matters have been in some way mismanaged—that there has either been over-potting, or the use of unsuitable or imperfectly prepared compost. There are some plants which do not readily admit of being renovated, such, for instance, as Cape Heaths; if, after attaining a certain size these lose much of their foliage, but little can be done to bring them into good condition again; if they have become naked and unsightly, the better way is to destroy them, and get free-growing young plants in their places. With the greater portion of the hard-wooded tribe, however, much more can be done to bring old and apparently worn-out specimens again into a good healthy state. It may be said, why not get rid of a collection which has thus degenerated, and start afresh with young and healthy plants? But many are reluctant to part with plants which they have had in their possession for years perhaps, and which are regarded somewhat in the light of old friends, and around which many old associations may linger. Specimens of hard-wooded plants, too, are not quickly formed, and therefore it is worth some little trouble to restore to health what one has. Certain rules as regards soil are often laid down, but this I consider a mistake, as the treatment of plants must be varied according to the circumstances under which they are placed.

When and How to Renovate.

The best time to set about the inspection and renovation of hard-wooded plants is the month of March, inasmuch as at this time the roots begin to grow and the sap to circulate. Plants potted, too, at this period have sufficient time to enable them to fairly establish themselves in the new soil before they are induced to make any great effort in the way of growth. At this season, too, there is generally more time at command than later, and if advantage be taken of inclement weather, when outdoor work cannot be carried on, what labour may be necessary can be thoroughly and carefully performed. The principal requisites will be a stock of well-sweetened soils of various kinds, clean pots, and drainage; also neat sticks of suitable length and strength. The soils to be used should have been exposed for at least a year to the action of the atmosphere. Loam is a good soil for many kinds of plants, but there is a wide difference in the quality of it as obtained from different localities. The term loam is often indiscriminately applied to any material between sandy turf and clay; much of the so-called loam that I have seen employed has been nearly destitute of fibre, and therefore wholly un-

suitable for potting, except for plants having roots of the strongest description. It is sometimes rather difficult to procure really good turfy loam, and when this is the case it is safer to put up with a lighter and somewhat poorer soil, and rely upon subsequent feeding to supply any deficiency that there may be in the way of nutriment. On turning a sickly plant out of its pot, one generally finds the extremities of the roots discoloured or wholly absent, owing to their having been destroyed by contact with sour soil; the latter, if carefully probed with a sharp-pointed stick, will come away in lumps, thus indicating a deficiency of fibre: we must therefore endeavour to remove as much of such mould as we possibly can, and replace it with something more suitable. This work is best performed when the ball is in a rather dry state, as it is then lighter to handle, and after as much of the old soil has been extracted in the manner just described as is possible without injury to the root, the ball may be gently tapped with the palm of the hand, when a considerable portion of the remaining soil will fall away. All decayed roots should be pruned off with a sharp knife, and if the plant be small enough to handle, it should be dipped in water, and then placed where the superfluous moisture can drain away. If it be too large to be thus treated, the roots may be sprinkled with a fine-rosed watering-pot. The advantage arising from this latter operation is that heavy waterings are rendered unnecessary for a time; the pots and drainage must, however, be damped, and the compost should be used in a moist state, in order to ensure full benefit therefrom. A pot should then be chosen into which the roots can only just be conveniently placed, for the less soil used the better, provided there is enough to surround the roots, amongst which it should be gently worked; by tapping the pot on the bench, the soil will settle gently into its place; hard potting is to be avoided, but the surface must be made firm, for if left loose the soil is apt to get into a muddy state. These directions apply more particularly to plants whose roots can be easily traced in the soil, and which as a rule require loam, leaf-mould, or a mixed compost. Plants that require peat to grow in can hardly be managed in this way; their roots are so fine and often so like the soil in colour, that it would be dangerous to remove much of it. The best way to treat this class of plant is to allow the soil to dry out, and then, after removing the old drainage, to tap the ball vigorously with the hand. This will bring away as much of the old mould as is consistent with safety; soak the ball, and let the surplus water drain away; the plant may then be replaced in the same-sized pot, as the object is merely to give just enough new soil to stimulate the roots into healthy action.

Soils of Different Kinds.

In the choice of soils for a mixed collection of plants, the operator must be guided by the appearance of each particular plant and the state of its root. The general rule to be observed is that the more weakly and debilitated the specimen the lighter the soil should be. I have myself completely restored old Myrtles, Oranges, Oleanders, &c., from a miserable state of decrepitude into good, free, healthy plants by simply reducing the size of the pot or tub, and using a very light sandy soil. It will, of course be understood that there are certain families of plants which will only thrive in a certain soil, such as Heaths, Epacris, and many New Holland plants; for them the best peat is absolutely necessary, and no other soil can well be employed. But most other genera are more accommodating; the Camellia, for instance, will luxuriate in either loam, peat, or leaf-mould, or a mixture of any or all of them. For our present purpose a mixed compost will be found the most suitable; about a third of each kind, with enough silver sand to render the whole free and light, will suit the greater portion of them. It must not be supposed that there will be any sudden or magical change effected hereby; the first season will be devoted to the production and preservation of new roots; it will only be in the course of the second or third season that the full benefit of this operation will be realized. After potting care must be taken in watering, giving it only when required, but insuring at the same time the perfect saturation of the ball. On bright sunny days they should be syringed once or twice, as otherwise the evaporation will be in excess of the root-power to supply the water. By the time

the hot weather arrives they will have struck fresh roots, but a little shade should be afforded them, and it is not advisable to turn them out-of-doors until well established; in fact, only those that appear to be doing very satisfactorily should be set outside, otherwise it is better to leave them the first season entirely under cover. Insect plagues, such as scale, thrips, fly, &c., must be kept in check; those plants possessing comparatively large and stiff foliage, such as Camellias and Oranges, should be well washed before being fresh potted. If treated as just described, the greater portion of the plants will be found by the end of the season to have pretty well filled the pots with healthy fibre. Next spring, therefore, they may be shifted into pots of a larger size, when they will make vigorous growth.

Pruning.

They should not be pruned the first season, as this can only be ventured upon where there is a command of bottom-heat; but if the pots be well filled with roots the second year, they may be cut back to the old wood, and this may be done fearlessly. Old straggling Azaleas may be cut in right to the old wood; the closer they are pruned, in fact, the more vigorous will be the succeeding growth. Such things as *Cytisus*, Camellias, Acacias, may all be operated on in this way with advantage, as strong, healthy growth, and a shapely plant will thus be obtained, which will amply repay the labour expended, and will be preferable either to throwing the plants away or allowing them to drag on from year to year in an unhealthy and unshapely condition.

JOHN CORNHILL.

Bullet.

REED MAT PROTECTORS OR COVERINGS.

WHERE unheated pits and frames are in constant use, some kind of external covering in addition to the glass is absolutely necessary, if the subjects to be wintered in them be at all tender. Where good Russia mats are sufficiently plentiful to be laid two or three thick upon frames, an ordinary winter may be safely passed through; but in addition to these, the great variety of plants that fall under the designation of bedders require some slight protection in the spring when they are passing from their winter to their summer quarters. Nearly all the coverings that I have seen in use or have been advocated in THE GARDEN lack the most essential qualifications of being light and portable, easy to put on and take off by one person, and capable of being stored away when not in use like Russia mats. In describing what are here called Reed mats (which our labourers make during wet weather), I may safely assert that they are a combination of all the good qualities of Russia mats with a much greater facility of resisting extremes of cold; any ordinarily handy workman can make them, and the only material necessary is a good stock of Reeds (stored in the autumn), with some strong tar rope and string. Having decided on the size of the mats (which is, of course, guided by the size of the frames or pits to be covered), four stout pieces of wood are nailed together as a temporary framework, and long nails 1 ft. apart, are inserted at the top and bottom, to which are fastened stout strands of tar rope, which act as ribs to the mats; then, commencing at the bottom, small bundles of Reeds (about twelve in each) are laid alternately the heads one way and the stems the other, whereby the mat is kept of an even thickness throughout; round each of these we fasten a smaller strand of tar string tightly round the straight strands or ribs with a loop or half-hitch knot, which binds the whole firmly together. When the required length is completed, the ends of the strings are loosened from the nails and plaited together, which form a very strong edging at top and bottom, and the ends are cut off level with a pair of shears; they may then be rolled up and tied round until required. These mats when in use offer the following advantages, viz., they will roll on or over a frame more easily than any kind of covering which I have yet seen; do not require fastening to prevent displacement by wind; and will dry themselves if stood on end—therefore always ready to resist frost. They carry rain off from any covering used in addition like a thatch, and being composed of straight hollow tubes, have a great power of acting as non-conductors of either heat or cold. I have tried many kinds of coverings, such as framework covered with oil-cloth, &c., which is a very useful way of covering Vine borders to carry off excessive heat, but as regards their power of resisting frost, they are inefficient. In this neighborhood good Reeds from 7 ft. to 9 ft. high are abundant, and of scarcely any commercial value, but in districts where they may not be so easily obtained, the straightest and stoutest straw that could be obtained would, with a slight modification in the mode of construction, make a very serviceable covering.

J. GROOM.

THE CINERARIA AND ITS CULTURE.

THE fine display afforded by the Cineraria at this season of the year and onwards reminds one that it is time to think of preparing for another season. To have Cinerarias in flower during the winter and spring and early summer, they should be propagated both by seed and by offsets; the latter plan is adopted chiefly in multiplying named sorts. It is still time to sow seed. A small packet of it if good will produce a sufficient number of plants for autumn and winter work, and for the later display it is much better to propagate named kinds, as they are altogether superior to seedlings. The seed should be sown in fine light soils in a shallow pan, and barely covered, and should be raised in a temperature of 60°; the pan should be covered with a pane of glass till the seedlings come through, and from first to last the soil must never be allowed to become dry; Cinerarias like and require a constantly moist soil. As the seedlings grow, they should be pricked out into other pans or shallow boxes, always employing a light, open compost, consisting of two-thirds loam, and one-third leaf-mould and sand and decayed manure. When the plants get too large for boxes, they should be potted into 4-in. or 5-in. pots, and from these, before they get pot-bound, into 8-in. or 9-in. ones, as a final shift. From the time they are fairly established in the boxes till they have done flowering, they should receive little or no assistance from fire-heat, but be grown on in cool frames during the summer behind a north wall if possible, and by September they may be placed in the cold greenhouse to flower.

Named varieties begin going out of flower towards the end of April and onwards till June. As fast as the flowers fade, the plants should be cut down and stowed away in a cold house or pit and kept watered, and at intervals during May and June they should be partially shaken out at the root and planted up to their collars on a north or east border, and in a free light soil, placing each kind in a row by itself for convenience. Here they will simply want deluging with water in dry weather, and by July they will be pushing numerous offsets from which the next stock must be raised. Our plan is to take off one batch—say 150—in July, another in August, and the last in September. Each offset is potted in a 4-in. pot as soon as taken off, and the plants are set as closely together as they will stand in a cold frame or a north aspect. Here they are watered and cared for till fairly established, when they are shifted into their flowering pots, and again transferred to the cool frame, from which they are, however, all removed by October to the greenhouse, where they remain till they come into flower. The pots are always well drained, but during their whole season of growth the plants are kept as cool and moist as possible. For weeks at a time during the dead of winter, the temperature of the Cineraria house seldom rises above 45° day or night, for no fire-heat is used except to exclude frosts; but the plants grow and thrive amazingly, and are never affected by green fly, which under other circumstances is the worst enemy of the Cineraria. Little need be said as regards general culture, except that the plants should never be pinched or staked—they require neither as a rule. Offsets lifted in time and treated generously, and shifted on in good time, will not show flower too soon; but if they do, the spikes should be pinched out. We never pinch a second time after the plants go into their flowering pots, and the flower-stems are always vigorous, the trusses broad, and the flowers large and of good substance. When the plants are fairly established in their pots, they require much water, which must be supplied unstintingly, and very weak liquid manure may be given every time they are watered, or about twice a week; but by giving a little every time they are sure not to be missed.

C.

HYBRIDIZING PRIMROSES AND POLYANTHUSES.

EARLY in last May I offered a few suggestions on the probable means of obtaining new and improved varieties of fancy Primroses and Polyanthuses. At that time only about a score of my second year's seedlings had bloomed, but they were so promising as to induce me to describe how they had been produced; since then the entire lot, consisting of over 700 plants, have flowered, fully confirming and even exceeding the favourable opinion that had been formed of their good properties; it is therefore with considerable confidence that I venture to urge my former advice, viz., that to secure a complete break as regards constitution, colours, markings, form, size, and scent, it is necessary to cross Primroses and Polyanthuses with the ultimate intention of re-crossing their hybrids with each of the normal species until an improved race of both is permanently established. A few of my giant Polyanthuses that have been raised by these means are very beautiful, showing a marked advance over old-established and named varieties; one of them, a delicate mauve, is peculiarly attractive; some are as brilliant as *Vesuvius*; others are of a darker shade, larger and better than *Auriculiflora*; another has crimson flowers

2½ in. in diameter; while several are as sweetly perfumed as the Rose. Many of the Primroses, too, are equally pleasing.

Last year only a small number of my seedlings were flat and circular, this season dozens of them possess both features, showing increased brightness of colour and distinctness of markings; all these advantages have proceeded almost exclusively from a very limited collection, comprising Vesuvius and a few named Primroses supplemented by my own seedlings, all which varieties, with the exception of altaica and a scarlet Primrose, have this season been dispensed with. The impossibility of procuring suitable sorts with which to work compelled me to apply the pollen of long-styled plants to each other; this necessity probably explains why a portion of my seedlings have produced very small flowers. My next or third year's seedlings will suffer from similar disadvantages, but with the possession of numerous improved varieties, I may reasonably hope that the plants raised from this year's seeds will not be readily surpassed in beauty. Owing to the persistent ravages of the larvæ of the *Oliorynchus*, only a very imperfect opinion can be formed of the merits of my productions, every plant having been injured by the attacks of from two to six grubs, which so seriously affected their roots as to render it necessary to wash all the soil from them; consequently at present not one of them is well established; and unless means can be adopted to overcome this difficulty, either the cultivation of Primroses will have to be abandoned, or else they will have to be treated as annuals.

Under favourable circumstances Primroses may be rendered available for winter blooming, for, notwithstanding the numerous drawbacks that mine have had to encounter, they have flowered in the Fern-house from October to the present time, and it is probable that they will yet last for several weeks; and had these plants been in vigorous health, there would have been a grand display during the winter and spring months. Though the pollen of leading varieties was freely used in crossing, not a single seedling exactly resembles either the male or seed-bearing parent, proving the strong tendency that these have to sport, and at the same time offering great encouragement to the hybridist. *Primula suaveolens* though a true (Swiss) Cowslip, differing considerably from *P. veris* in foliage, colour of the flower, and also in the eye, was crossed with either *P. elatior* or *P. acaulis*, and about forty seedlings were the result. Of these a few are true Cowslips, the flowers of which closely resemble those of *P. suaveolens*, while the foliage is similar to that of *P. veris*. Others in many respects can scarcely be distinguished from our northern Oxlip, indirectly pointing to the origin of that so-called species. Several of these seedlings have half assumed the orange-red of the scarlet Primrose, leading to the suspicion that this colour may be attributed to *P. veris*, and that with judicious crossing a true *Polyanthus* might be obtained, proving the latter to be only the developed hybrid of *P. veris* and *P. acaulis*.

Hybridising has varied the arrangement of the productive organs, for, though they are usually normal, there are many exceptions where the stigma protrudes one-eighth of an inch beyond the tube; often it just rises to the surface of the flower, while with others it rests almost on the anthers at the bottom of the tube; should this disturbance extend, it is possible that *P. acaulis* will eventually become monoecious. Most of the properties that were suggested last season as desirable are, I believe, substantially correct, though the form and size of the eye and the number of the lobes or petals are open for further consideration. For most selfs the eye cannot be too round, though its size must be regulated by the diameter of the flower, but for white and light coloured shades the same cannot be too large; it may also be round, radiated, or foliated. Six lobes usually ensure a round flower, and produce a good effect, and will possibly be the means of introducing double flowers; but several years must pass before these and many other difficulties, viz., how to obtain a perfect Primrose or Polyanthus, are solved.

A. CLAPHAM.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

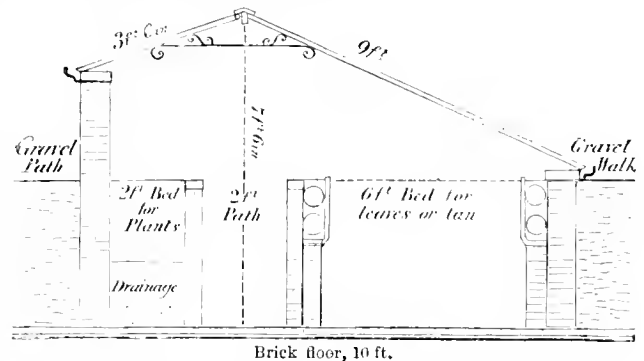
Choisya ternata.—This is a good plant when well grown, and the white flowers are sweet-scented. The leaves, however, have an odour that is not agreeable. It is nearly hardy, but is best grown in a cool house.—J. H.

Propagating Poinsettias.—These are often thought to be difficult to propagate, but I have never found them to be so. I do not start the old plants into growth and then make the young shoots into cuttings, but I cut up the stems into short pieces, with one eye or bud attached to each, as if propagating Vines, and place them singly in thumb pots filled with a mixture of sand and leaf-soil. The pots are then plunged in bottom-heat, but they also root freely without this, provided the soil is never allowed to become dry.—A NORTHERN GARDENER.

LOBELIA AXIFLORA.—This showy kind, with large and handsome orange-red and yellow flowers, is well deserving of culture; I have very seldom seen it in cultivation. It has Willow-like leaves, and is a free-grower in a cool greenhouse.—J. H.

HIP-ROOFED HOUSES OR PITS.

I READILY comply with "C. J. H.'s" request (see p. 264) for a few explanatory notes on these useful structures; and, in describing those alluded to at p. 190, I may as well state that they are by no means imposing-looking structures externally, being sunk in the ground level with the front wall plate; yet they fully realise "C. J. H.'s" opinion of being about as useful for general purposes as any kind of building that can be erected in a garden. When gardens are of any great extent, a show house or conservatory more or less lofty either attached or close to the mansion is a necessity; but the houses or pits whence the supply of forced products is to be derived need not rival lighthouses in loftiness; in fact, when external architectural appearance is the first consideration, the real purposes for which the buildings were erected is frequently altogether or partially frustrated; therefore a decided distinction should be made between growing and showing houses, for if the former be not adapted to the end in view, the latter will necessarily suffer by a lack of subjects, or at least by an inferior quality in the subjects to show. It is generally acknowledged to be an important consideration in plant culture that the nearer the plants are kept to the glass the better, especially during the dull days of late autumn and winter, when every ray of light that it is possible to obtain should be utilised; while as regards the amount of heating power necessary to raise the temperature of a pit similar to the above (where the amount of useless vacant space is reduced to a minimum)



Back lights on hinges for ventilation. Front lights slide on rollers for ventilation or convenience of emptying or re-filling pits.

and a house with elevated roof and side-lights, when exposed to severe frost or cutting winds, the advantage on the side of the smaller structure is at once apparent; besides which, when external coverings are applied during severe weather, a proportionate amount of dry heat will be economised with advantage both to the occupants and to the coal bill, which latter has of late years been a serious drawback to indoor gardening. As regards the interior arrangements which may be regulated according to the subjects in request, we plant the narrow back beds permanently for the supply of such flowers as Gardenias, Stephanotis, &c., in hottest divisions, and Tea Roses and similar plants in coolest ones. The front beds are filled with the best Oak or Beech leaves that can be got and trodden down quite firmly, which thereby maintain a gentle heat the whole season, and afford an excellent position for forwarding pot Vines, Roses, Eucharis and similar bulbs and shrubs, and various subjects that it is desirable to hasten to either flower or fruit; or Melons and Cucumbers are either planted at once, or as the demand for forced flowers diminishes. By having stop-valves and cross return-pipes in each compartment, a regular succession of temperature may be maintained, the efficiency of which would not be interfered with by the dimensions of such a structure. In erecting the pits above alluded to, I utilised a vacant space and spare materials, and although with a wider range of both external and internal appearances they might have been improved, yet the most important of all points in structures not intended for exhibition could scarcely have been improved, viz., answering the purposes for which they were erected.

J. GROOM.

Honham.

MIXED COLLECTIONS OF PLANTS FOR MARKET.

THE immense quantities of market plants that are yearly produced in some of the London suburban florists' establishments are not less astonishing than the perfection to which they are brought. Where only a few kinds of plants are grown and glass structures are specially provided for them, the trouble and care attending their culture are much less than what is required for a general collection of plants, inasmuch as in the latter case considerable forethought must be exercised in order to provide room for the various subjects just at the time when they require it by having others ready for removal to market. Perhaps a better illustration of general plant-growing for market could not be found near London than in the Brunswick Nursery, Tottenham. The ground which it occupies is but limited, but the houses by which it is almost entirely covered are made to produce healthy plants of various descriptions fit for market at all seasons of the year. The great advantage gained by having a mixed collection of plants is, that a few van-loads fit for market can at all times be made up, whereas, when only a few kinds are grown, blanks in the supply—and consequently in the incomes—frequently occur. Notwithstanding that Mr. Maller—the proprietor of the nursery in question—grows a great variety of subjects, he, in common with other market-growers, makes a few plants a speciality, the principal ones being Heaths, Spiræas, and Rhodanthes. Of Heaths, 30,000 are flowered and disposed of annually: these consist chiefly of *Erica gracilis*, *hyemalis*, *candidissima*, and *Willmoreana*, the two former being for winter and early spring flowering. Cuttings of these are struck on a very slight bottom-heat in winter, and when rooted, they are potted off three in small 3-in. pots, and placed in light, airy positions, as on shelves in the houses or in pits close to the glass. During March they are shifted singly into 3-in. pots, and when well rooted, are placed in cold pits and subjected to as much air, light, and sun as possible. In this state they remain throughout the summer, receiving abundance of water both overhead and at the roots. In the following winter they are cut down, and as soon as fresh growth commences, they receive their final shift into 5-in. pots, extra large plants being potted in 6-in. ones. They are potted in pure peat and sand, a soil in which they appear to grow as freely as scarlet Pelargoniums. Fire-heat is as much as possible avoided, coverings of mats, &c., being applied in preference during severe weather. Of *Spiræa japonica* about from 5000 to 6000 are grown; the roots of these are not imported, but are grown on Mr. Maller's own land. They are planted out in rich, moist soil, in a sunny situation, where they ripen their crowns perfectly. They are taken up and potted early in the autumn, kept copiously supplied with water, and forced gradually on in successive batches for winter and spring blooming. *Spiræa palmata* is also grown here, but not in such quantities as *S. japonica*.

Rhodanthes are probably more extensively cultivated here than in any other place near London, from 10,000 to 15,000 potfuls of them being grown annually. The seed, which is imported from Belgium, is sown at successive intervals from early in January until the end of April, in shallow wooden boxes. These are placed in gentle heat until the seeds have germinated, when they are removed to a lighter and more airy situation, and as the plants advance in growth all the air possible is admitted to them. When large enough to handle they are pricked off six or eight into a 6-in. pot, placed on the floors of the houses in light situations, and form a succession of bushy, well-flowered plants early in April and onwards through the summer. The varieties grown are *R. Manglesi* and *R. maculata*, and its white variety.

Fairy Roses form an interesting feature in this establishment, in which many thousands of them are grown, and a lovely sight they present when in full bloom. They are grown in 5-in. and 6-in. pots, in rich, sandy loam. A stake, placed in the centre of each pot, to which the main shoots are tied, induces the plants to assume a pyramidal, though by no means a formal shape. They grow about 6 in. or 9 in. in height, and about as much through, and in February, March, and April are covered with small, bright blossoms. Of *Cytisus racemosus* several thousands are grown here, and are remarkable examples of good cultivation, their long racemes of bright

golden Pea-shaped flowers standing well up above dense masses of healthy foliage. Cyclamens, too, are grown here in quantities. Their seed is sown in January, and the produce, grown on rapidly, forms excellent floriferous plants in 6-in. pots by the following autumn. A number of plants bearing the most perfectly formed and best-coloured blossoms are selected yearly from the stock, and placed by themselves for seed-bearing, and in this way the strain is each year improved. Clematises of different kinds are grown in the shape of pyramids, and when in flower they are either sold in the form of plants, or their blooms are disposed of in a cut state. Several houses are devoted to large white-flowered Azaleas, for furnishing cut blooms at Christmas and Easter, these being the seasons when white flowers are most in demand. A long span-roofed house supplies Roses for Easter; the plants are on their own roots and on the Manetti stock, and the strongest of the shoots are yearly pegged down to the bed in which they are planted, so as to entirely cover its surface; by this means a dense thicket of upright shoots is produced, each being thickly set with bloom-buds. The variety grown is General Jacqueminot, which is found to answer the purpose better than any other.

In addition to the above, there are thousands of Lily of the Valley from home-grown crowns, Fancy and Zonal Pelargoniums, *Ficus elastica*, Fuchsias, seedling Verbenas, and many other kinds of plants. Indeed, through the summer months over 100 dozen of various kinds are sent to market weekly. Among other plants *Sparmannia africana* is grown here for furnishing cut blooms, a purpose for which it answers admirably. Bedding plants of various descriptions are grown to fill up any spare room that may occur, and these being but a very short time on hand, little labour is incurred in their culture. There are also about twenty houses of various sizes and shapes, ranging from 60 ft. to 150 ft. in length, and every inch of space in them is utilized in the best manner possible. During summer, when Heaths, *Cytisuses*, and other plants are out-of-doors, Pelargoniums, Roses, *Spiræas*, &c., are principally disposed of, and the young stock can be placed in a small compass, the houses are filled with Ferns, Lycopods, *Poinsettias*, *Bouvardias*, and similar plants for sale late in the year and at Christmas. S.

Old Potatoes still the Best.—I have tried nearly all the new varieties of Potatoes during the last few years, but I have not yet met with any to supersede or even to equal the best of the old ones for general purposes. As regards earliness, I have found nothing so good as Myatt's and Hammermith Kidneys. As a second early kind Lapstone stands above all others; and for field planting Regents and Victorias are the best. I have not grown Snowflake largely, but I regard it as very promising. Have any of your correspondents noticed a falling off both in quantity of crop and size of tubers in the case of the Early Rose and other American sorts? Let me recommend all who intend planting Magnum Bonum to give it plenty of room. I planted some last season 2½ ft. by 2 ft. apart, and I was obliged to tie up the haulm to stakes.—J. BELL, *Strathfieldsaye*.

Berberis Darwini as a Hedge Plant.—Your correspondents do not refer to this plant as suitable for hedges. I have some experience in the matter, and I know of no better plant for that purpose. Its foliage is of a beautiful green all the year round, and when covered with orange flowers in April and May, it excites much admiration. It can be cut and trimmed with ease, and is as impenetrable as the Thorn. It is easily cultivated, and of very rapid growth.—W. V., *White Abbey*.

—A large *Berberis Darwini* was planted around the flower garden at Coldrenick, some years ago to make a screen, and nothing could have answered the purpose better. It is a quick grower, will bear close pruning, and is preferable to Holly in appearance. It should not be allowed to flower, for when-ever that occurs it looks patchy. This *Berberis* seeds freely and a stock of it can soon be got up. I would recommend any one who wants a handsome ornamental screen or hedge of any description to plant it. It does not do so well under trees as in open quarters.—J. D. NANCYAN, *Whiteaway*.

Vicomtesse Hericart de Thury Strawberry for forcing.—This has been superior to all other sorts here this season; among those first introduced to heat were Vicomtesse Hericart de Thury, Duc de Malakoff, and Keen's Seedling; and in the second batch were Vicomtesse Hericart de Thury, Duc de Malakoff, Keen's Seedling, La Grosse Sacree, and President, and in both cases Vicomtesse Hericart de Thury shows its superiority over all the others, being a better grower and setter, and producing quite three times as much fruit as any of its associates. Any one wishing to see these Strawberries may do so by paying us a visit.—J. WILLIAMS, *Dunortan, Tunbridge Wells*.

SOCIETIES AND EXHIBITIONS.

NATIONAL AURICULA SOCIETY'S SHOW.

CRYSTAL PALACE, APRIL 24.

THIS exhibition, which was in many respects highly interesting, showed conclusively that the taste for Auriculas and similar old-fashioned flowers has by no means died out as some had imagined. In all about 1000 plants were staged, and notwithstanding the lateness of the season, which more especially affected exhibitors from the North, the display was perhaps the best ever seen in the southern district, and the attendance of visitors was greater than had been anticipated. Northern growers were represented by the Rev. F. D. Horner, of Kirby-Malzeard, Ripon, and by Mr. Ben Simonite, Sheffield, both of whom were successful competitors, while Mr. Charles Turner, Slough, and Mr. James Douglas, Loxford Hall, Ilford, and other southern cultivators, had large and well-grown collections. The finest Auricula exhibited was George Lightbody, one of the best of all grey-edged flowers. Mr. Charles Turner showed a beautiful group of pot Roses and Azaleas, along with which were tastefully arranged well-grown plants of *Adiantum Farleyense* and other Ferns. The effective appearance of this group was also much enhanced by a background of tall Palms, *Dracenas*, *Aralias*, and other fine-foliated plants from the conservatories of the Crystal Palace Company. The tables on which the Auriculas were staged were also set off to advantage by means of the introduction of a central group of remarkably fresh-looking, well-arranged succulents, such as green and variegated *Agaves*, *Aloes*, *Kleinias*, and *Echeverias*, fringed with a line of the pale green *Sempervivum tabulaforme*, one of the most distinct and useful of all half-hardy decorative Houseleeks.

Auriculas.—In the class of fifty Auriculas in bloom, Mr. Charles Turner had a well-grown collection, both flowers and foliage being remarkably fresh and effective. In the show varieties Clipper (Turner) occupied a prominent place among self-coloured kinds, being a well-elevated, stout truss, of shapely, rich purple flowers; Garnet is also a desirable purple-coloured variety; General Neill (Traill) was in excellent condition, and one of the most brilliant and distinct of all grey-edged Auriculas; Colonel Champneys (Turner) was well represented; the ground colour of this variety is brilliant violet-purple, a tint which contrasts well with the dense white paste and bold, thickly-powdered foliage. Charles Perry (Turner) is another desirable, deep violet, self-coloured flower, bearing well-elevated trusses of flat and shapely pips, each about 1 in. across. Alpine varieties were well represented. In Mr. Turner's collection we noted *Perceval*, a vivid crimson; Mrs. Thomson, good both in texture and colour; Mrs. Carter, a dark crimson, nearly black, a colour intensified by a rich, clear, golden centre; Mrs. Llewellyn, a rich purple-tinted variety; and many others. Mr. J. Douglas was second in this class with a well-grown group, in which *Master Hale* and *Meteor Flag* were conspicuous, as were also *Vulcan* (Sims), a rich blackish-crimson; *True Briton* (Hepworth), a beautiful white-edged variety; and *Topsy* (Kay), a rich dark purple, of more than average merit. Mr. Douglas also had a white-edged variety named *John Waterston* (Cunningham) in excellent condition. Mr. S. Cooper, of the Hollies, Timperley, showed a good collection in this class. In the class of twelve varieties, the Rev. F. D. Horner had the best collection, Mr. B. Simonite, of Rough Bank, Sheffield, being second, and Mr. Douglas third. Among the varieties exhibited in this class the following deserve more than a passing notice, viz., *John Simonite*, an effective white-edged kind; *Charles Perry*; *Prince of Greens*; *Ann Smith*; *Pizarro*, a showy self-tinted-like crimson velvet; *Lancashire Hero* (Cheetham); and *Booth's Freedom*. Mr. Simonite had *George Lightbody*; *Spalding's Metropolitan*, a rich violet-purple self, a seedling of his own raising of a rich port-wine colour, with a good paste; and other good kinds. Mr. Douglas contributed *Charles Perry* (Turner), *Col. Champneys* (Turner), *Pizarro*, *Lancashire Hero*, *Lady Sale*, and the rich velvety-purple *Topsy*. In the class of six varieties, Mr. Horner was again first, Mr. Douglas second, and Mr. Simonite third; the varieties in the best group were *Pizarro*, *George Lightbody*, *Lancashire Hero*, *Smiling Beauty* (Heaps), *Prince of Greens*, and *Pizarro*. In the Alpine classes the principal awards were obtained by Mr. Charles Turner and Mr. J. Douglas, who had excellent and showy groups, some of the plants bearing six trusses; among these we especially noted *Queen Victoria* (Turner), a large-flowered variety, the paste of which is circular and of a delicate straw colour, the ground colour being rich velvety-purple edged with violet; *Nat Norman*, crimson; *John Ball* (Turner), a rich velvety-crimson with bright golden paste; *Dolly Varden*, maroon; *Fascination*, rich violet-purple; *Vesuvius*, crimson; and *Queen Eleanor*, a rich, velvety, violet-purple flower with pale sulphur paste. Mr. Douglas had good plants of *Miss Reid*, a delicate blue-tinted kind; *Sydney*, purple; *Beatrice*, a large, circular, purple flower with sulphur-coloured paste; and one or two vigorous and richly-coloured seedlings.

New Auriculas.—Not the least remarkable feature of this exhibition was the fine display of new Auriculas. Mr. B. Simonite had *Frank Simonite*, a white-edged flower of great beauty, the tube well coloured, the paste dense, pure, and smooth, the ground-colour black, the pip bold and rounded, and the truss large and well displayed. This will be a formidable rival to that queen among white-edged flowers, *Heap's Smiling Beauty*. The same exhibitor also had *Talisman*, broad, deep green edge, tube a little pale, dense smooth paste, black ground, large, bold pip, and smooth petal; *William Bradshaw*, a

fine grey edge, of bold and striking appearance and refined quality; and *Fanny Crossland*, white-edged, small as shown but full of promise, tube and paste good, the ground-colour dense and well displayed, and well-formed petal. These flowers all bid fair to take leading positions in their respective classes. The Rev. F. D. Horner showed Walker's *John Simonite*, a very fine white edge, the pip large but well proportioned, and very smooth, tube and paste good, body-colour dark—a flower that will be much sought after by cultivators. *Peacemaker*, a promising green edge, was shown by Mr. C. Turner: it has a golden tube, good, circular paste, dark ground, fine petal, and pip flat and circular. *Clipper*, also shown by Mr. C. Turner, is a fine, bold, dark self, tube and paste good, the body-colour glossy, black plum—a finely-formed flower.

Polyanthuses.—The best six Polyanthuses came from Mr. George Smith, Hedge Lane, Edmonton, who had gold-laced varieties, very similar in general appearance, bearing the following names:—*Rupert*, *Lothair*, *Gertrude*, *Retriever*, *Flora*, and *Garland*. Mr. Smith also obtained the first prize in the class for two Polyanthuses with *Advancer*, a rich gold-laced kind, and *Emma*, a less desirable flower. Mr. R. Dean, who was second with six well-grown Polyanthuses, had *Purity*, white; *Viceroy*, primrose; *marginata*, a white-edged, fancy variety; *Harlequin*, also a fancy kind; and *Mars* and *Sunrise*, both crimson-tinted varieties, well suited for decorative purposes. Mr. Dean also had *Polyanthus Buttercup*, a primrose and orange-tinted kind, with well-elevated umbels. The following, too, are robust, and admirably suited for decorative purposes, viz.:—*Avalanche*, double white and yellow; *Silver Line*, magenta-crimson with a white edge; *Purity*, a large, white, yellow-eyed flower; *Viceroy*, primrose, with an orange ray and good truss; and *The Bride*, white and orange, a smooth, broad-petalled flower. Mr. Hooper, *Widcombe Hill*, Bath, was awarded an extra prize for a group of seedling Polyanthuses and a beautiful collection of named Pansies, the flowers of the latter being large, smooth, and richly coloured. Mr. R. Dean obtained a similar award for a group of Polyanthuses, Auriculas, and other spring flowers, including cut blooms of the large, rich, scarlet-flowered *Anemone fulgens*. Messrs. Harrison & Sons, Leicester, sent well-grown examples of their new, large-flowered *Musk*, which is an improvement on the older varieties.

Royal Horticultural Society.—A good many of the would-be Guinea Fellows on our list, and others, have sent in their names here, or direct to the Society, as willing to become guinea members, but many have not yet decided how to act: perhaps the best hope of influencing them is in trying to show the present position of the Society. The nurserymen in and near London can, if they please, make the fortnightly shows at South Kensington beautiful ones: it will be worth their while to do so if enough of Fellows and of the public see the plants they exhibit. All the shows held this year have been good ones, there will, therefore, be good value for the guinea subscriptions of all living near London, and so it may be expected that very many new subscribers will join the Society. If this be so, whatever may have been the case in the past, it is probable that the South Kensington Garden will pay both its direct cost and that of furnishing it with plants grown at Chiswick: therefore there is no reason why all money subscribed by horticulturists in order to promote horticultural science should not be applied to purely horticultural purposes at Chiswick and elsewhere, and that the South Kensington Garden, instead of being a charge should be a benefit, as providing gratis a good place for committee meetings and shows. Among the nurserymen who make the shows some are, of course, really good horticulturists, but I think it should now be a great object to induce as many as possible of the best scientific horticulturists of the country to join the Society, as, until they do so, it will never be the great representative society which it should be. The guinea membership, with hope of a vote for country members hereafter, will help this; some of the very highest country horticulturists, among them the Rev. H. Harpur Crewe and Mr. George Maw have already become members or Fellows; and last, but not least, Mr. Isaac Anderson-Henry, of Edinburgh, has sent me his name to go in as a guinea member, with the hope of greater privileges hereafter. It is now of the greatest importance that as many well-wishers of horticultural science as possible should join the Society. It was feared by some that guinea fellowship or membership would stand in the way of the higher subscriptions; this appears not to have been the case. I may, perhaps, give one instance in proof of this—an old friend sent his name for our guinea list, but, when the time of joining the society came, he—for the sake probably of the transferable ticket—not only became a £2 2s. Fellow himself, but made his wife and daughter-in-law £2 2s. Fellows also.—*GEORGE F. WILSON, Heatherbank, Weybridge Heath.*

OBITUARY.

WE have to record with regret the death of Mr. David Cunningham, an event which took place at Moorpark, Hertfordshire, on the 17th inst., at the comparatively early age of fifty-seven. As a gardener he always held responsible situations, the duties of which he discharged with credit to himself and satisfaction to his employers.

Spring Water for Plants.—Our flower garden and rockery have to be supplied with water pumped into a 115-gallon cask, from a well 20 ft. deep in drift gravel. As the cask often has to be filled more than once a day in summer, the water cannot be long exposed to the air before it is used. If spring water be injurious choice Alpine and other plants, could anything be used to soften the water? and if so, what quantity should be put into a 115-gallon cask? There is not much, if any, lime in the water.—O.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES OF THE WEEK.

ASPARAGUS GATHERING AT ARGENTEUIL.—This is the season of gathering Asparagus at Argenteuil, and the process is interesting to the stranger. Asparagus knives of various forms are described in both French and English books, but one is confidentially told that they are only fitted for amateurs who do not care to soil their fingers. The good cultivators here never use a knife. Each crown or root is covered with a little mound of loose earth; through the top of this the tips of the strong, thick shoots are seen appearing. They are ready to gather when exactly 1 in. above the mould. In the light the young shoot first assumes a delicate rose-purple hue. It is not enough for the shoot to be visible on the surface; it must be 1 in. above it, so as to show the slightly rosy tip. The gathering occurs every second day about the end of April, but in May, when the growth is more active, the stools are gathered from every day. Given a shoot emerging from the earth ready to gather: the slightly hardened crust around the emerging bud is pushed aside, the fore and middle finger separate are then pushed deeply into the soft mould, pushing the earth outwards. If a rising shoot be met with on the way down, it is carefully avoided. A second plunge of the two fingers and pushing out of the earth usually bring them to the hardened ground about the crest of the root; the forefinger is then slipped behind the base of the shoot and pushed gently outwards, when the shoot at once snaps clean off at its base. This plan has the advantages of leaving no mutilated shoots or decaying matter in the ground. Here each plant of Asparagus is treated as a useful inhabitant of the Commune ought to be, and every cause of decay carefully avoided. Once gathered, care is taken that the shoot is not exposed to the light, but placed at once in a covered basket. As soon as the stalk is gathered, the earth is loosely and gently raked up with the hand so as to leave the surface of the mound as it was before, care being taken not to press the earth in any way, but to keep it quite free. The shoots are not rubbed or cleaned in any way—it would disfigure them, and they do not require it. Asparagus in a green state is only cut here for soup, &c., and for that only inferior shoots. We sometimes see observations as to the great superiority of the green-cut Asparagus over that blanched in the above manner; but they are invariably written by persons who know the ordinary green form only, or the withered blanched stalks a week old in a shop window. But those who know what good Asparagus really is—and we speak now of good judges in Covent Garden—know well that in flavour green and properly blanched Asparagus are very different things, and that the blanched is the best and most delicate. This is so much the opinion in the country where Asparagus is really well cultivated, that what is to be used for table is always grown and gathered as above described.

GREAT FLORAL EXHIBITION AT VIENNA.—It may perhaps interest some of the readers of THE GARDEN to know that the exhibition which took place the other day at Vienna was a very successful one; I venture, therefore, to send you a rough sketch of my observations made on the occasion. In the southern part of Germany Nature is comparatively rich in charms, and the tendency of social life has somewhat of an outdoor character—circumstances both adverse to the development of horticultural pursuits. I have often remarked the slow progress which horticulture made here, and therefore I was the more astonished to find the exhibition now under notice so brilliant and in every way so excellent. Not only amateur horticulturists, but also nurserymen and growers for market, all made a splendid show, which had a character peculiarly its own—a show, indeed, that nearly equalled that held last year at Brussels. The general arrangement was all that could be desired, and the rules by which its several departments were governed were well carried out; so much so,

that the special juries, as well as the general jury, discharged their several duties within the short space of half a day. The exhibition was opened by the Emperor and other members of the Royal Family. Its different departments were well supported—even a very good collection of Sarracenias, Darling-tonias, and Cephalotus was there. What are called New Holland or Australian plants were well represented, as were also Cape Heaths, and there were likewise good specimens of Himalayan Rhododendrons well flowered in a small state. Associated with these was also a brilliant specimen of Rhododendron javanicum some 3 ft. in diameter, and furnished with numerous well-developed trusses of flowers, that showed themselves off to great advantage above the ample healthy foliage. Palms, rare Ferns, and other fine-foliaged plants were capitally represented. The florists of Vienna showed that notwithstanding the difficult climate with which they have to deal and the comparative cheapness of their productions, they were capable of producing many market plants nearly as good as those seen in Covent Garden; some specialties, indeed, such as Calceolarias and Carnations, were better than I ever saw them anywhere else. Vegetables, though not numerous, were good, and among them was a fine show of Potatoes. Garden ornaments, heating apparatus, and similar exhibits were likewise well represented.—*MAX LEICHTLIN, Baden Baden.*

NEW WHITE HYDRANGEA, THOMAS HOGG.—A large basketful of this beautiful plant was shown by Messrs. Veitch & Sons, at South Kensington, on Wednesday last, when it received a first-class certificate, and excited much admiration. It is of Japanese origin, having been introduced to America by Mr. Thomas Hogg, in compliment to whom it is named; in habit it is quite as vigorous and floriferous as the common pink kind, and as the flowers are clear paper-white in colour, and are borne in immense heads, even on small plants, it is sure to become popular for decorative purposes and as a plant for market.—*B.*

BOUGAINVILLEA SPECTABILIS AT KEW.—One of the most showy plants now in bloom at Kew is a large Bougainvillea growing in the porch of the old Victoria-house. Its branches hang loosely from the iron support over which the plant was formerly trained, and are covered with thousands of bright mauve-coloured bracts, forming a profusion of wreaths and festoons from 5 ft. to 6 ft. in length. The abundant inflorescence in this case is attributed to the plant having been afforded a light sunny position, which has the effect of thoroughly ripening the young growths.—*T. S.*

TORENIA FOURNIERI.—This was one of the most pleasing of all the new plants exhibited at the show held the other day at South Kensington. It is dwarf and compact, having a more erect and branching habit than the well-known *Torenia asiatica*. The flowers are pale blue with velvety black petals, the lowermost of which has a spot of lemon-yellow in the centre. Being readily propagated and most floriferous in a small state, it will be invaluable as a warm greenhouse or conservatory plant when better known.—*J. K.*

PONTEDERIA CRASSIPES.—This singular floating aquatic plant is just now producing its pretty little purplish-blue flowers freely in one of the hot-houses in the Botanic Gardens, Regent's Park. The flowers, which are racemose, are borne on a one-leaved stem, and the plant itself is supported above the water-level by means of its funnel-shaped, buoy-like petioles, which are inflated with air. Even when not in bloom, this plant is so peculiarly interesting that it well deserves culture.—*B.*

THE DWARF BANANA.—At the meeting of the Royal Horticultural Society, held on Wednesday last, Mr. Ollerhead, gardener to Sir H. Peck, showed a magnificent dish of dwarf Bananas, or fruits of the Chinese *Musa Cavendishi*. The specimens exhibited were large and highly coloured, the smooth covering of the plump, oblong fruits being of a clear yellow tint. A cluster of this variety grown by Mr. Ollerhead and exhibited at a former meeting weighed 98 lb., a result which proves clearly that we may enjoy this, and possibly other tropical fruits, fresh from our own gardens if we desire to do so.—*B.*

CINERARIAS FOR SEED.—One of the most attractive floral displays now to be seen in London nurseries are the Cinerarias in Messrs. Hayes' establishment at Ponder's End. They occupy a span-roofed pit about 120 ft. in length and from 12 ft. to 15 ft. wide, which is now one mass of bloom. The plants on which it is produced have been selected from many thousands grown for market. To each colour is assigned a separate compartment, with the view of preventing the strain from being spoiled by means of insect fertilization. The flowers are of unusually large size, and vary in colour from the most delicate lavender to the deepest crimson. One set of plants

deserves special notice, their flowers being white and delicately tinted with mauve or lavender—colours much appreciated by bouquet makers.—S. C.

IRIS PSEUDACORUS VARIEGATA.—This variegated form of the common yellow Iris does not appear to receive so much attention as its beauty might lead one to expect. It thrives luxuriantly in any moist situation, but the proper place for it is on the margins of lakes or in small ponds. Its long sword-shaped leaves, which are beautifully striped with yellow, white, and green, are very effective when associated with green-leaved aquatic plants.—T. S.

MASDEVALLIA VEITCHI.—A small plant of this comparatively new Masdevallia, growing in the Orchid-house at Kew in a 4-in. pot, is now bearing seven large and brilliantly-coloured blossoms. Considering that this plant can be grown successfully in a cool house, and that if large plants of it are as floriferous in proportion as the one under notice, this Masdevallia cannot fail to become extensively cultivated by all who appreciate a fine display of brilliant blossoms.—J. N.

CYPRIPEDIUM NIVEUM.—Plants of this lovely variety of Lady's-slipper in Messrs. Henderson's nursery are now thickly covered with beautifully formed pure white blossoms. When grown in shallow pans and the plants covered with flowers, this *Cypripedium* is probably the most effective of the genus.—J. M.

FLOWER SHOW AT ORLEANS HOUSE, TWICKENHAM.—This is announced to take place on Friday and Saturday, the 25th and 26th of this month, and we observe that £350 are to be awarded in prizes. The subjects of exhibition are to consist of Roses, Stove and Greenhouse Plants, Orchids, Azaleas, Fine-foliaged Plants, Pelargoniums, Heaths, &c., and there is also a class for new and rare plants.

SPEKELIA OLAUCA.—Large quantities of this Jacobean Lily may now be seen in flower in the Pine-apple nursery. Though seldom met with, this plant well deserves a place among spring-flowering conservatory plants. It is easily cultivated, and when associated with Ferns and similar plants, its brilliant crimson-striped blossoms are very effective.—S.

DENDROBIUM THYRSIFLORUM.—Several plants of this distinct and attractive *Dendrobium* are now finely in bloom in the Londesborough collection. The plants, which are grown in pots, bear respectively six or seven large pendent clusters, each containing from twenty-five to thirty bright gold-coloured and pure white flowers. In habit this fine *Dendrobium* bears considerable resemblance to *D. densiflorum*, but its colours are brighter and more effective.—T. S.

SCARLET PELARGONIUMS FOR MARKET.—Three span-roofed houses of *Vesuvius Pelargoniums*, each from 120 ft. to 130 ft. in length, in Messrs. Hayes' nursery at Edmonton, are now, as may be imagined, strikingly attractive. Each house contains many thousands of plants growing in 6-in. pots. They are struck from cuttings in the autumn, and, while growing, their shoots are frequently stopped. They are now about 12 in. in height and as much through, and loaded with trusses of bloom of unusually large size. Such plants as these afford abundance of cut flowers during the winter, and in spring they find a ready sale for furnishing vases, window sills, and even flower gardens where an immediate effect is desirable.—S.

HARDY BAMBOOS SEEDING IN IRELAND.—In common with several other of your correspondents, I observed last year the remarkable fact of plants of *Arundinaria falcata* producing flowers and perfecting seed in this country, an occurrence, I believe, hitherto unknown since the introduction of the plant. I saved a small quantity of the seed, and now have a fair crop of healthy seedlings. They appear to germinate best when not covered, but merely placed on the surface of pots in a warm moist atmosphere such as a tan bed. Will the canes, which have flowered, again put forth leaves and shoots as usual, or will they die and become hard? So far, I can discover no trace of growth in the old canes.—G. PIM, *Monkstown, Co. Dublin.*

NARCISSUS POETICUS.—Several beds of this, the most beautiful of all the *Narcissi*, are now finely in bloom in Mr. Barr's grounds at Tooting. Some of the flowers measure as much as 3 in. in diameter, and are deliciously scented. It is surprising that this is not grown in private establishments more than it is, for besides producing a good effect in shrubby borders or elsewhere for a long time during the spring, the flowers are invaluable in a cut state, their pure white petals and reddish-edged cups rendering them very effective when associated in vases and epergnes with foliage and flowers of other kinds. They are greatly appreciated in Covent Garden, where they may be seen in large quantities. In the neighbourhood of Fulham they are grown by the acre for market purposes.—S.

"THE JOURNAL OF FORESTRY."—We have received the first number of a journal with this name, which deserves success for its aim as well as for the manner in which it is brought out. There is a good

list of the names of gentlemen who have promised to contribute. We should like to have seen the name of the editor as well as the contributors, believing such journals are the better for their captain's name being no secret. We fear the taste for the noble, and in all ways profitable, pursuit of forestry is not sufficiently spread among us to make this journal the success which it deserves to be.

A GARDEN AT HYÈRES.—It is not generally known that, in connexion with the "Jardin d'Acclimatation" at Paris, there exists a botanical garden, some 20 acres in extent, at Hyères, in the South of France. At the present time it contains 860 species of trees and shrubs growing in the open air, among which are 62 varieties of Oranges and Lemons, 193 of Roses, 145 of Vines, 16 of Olives, 45 of *Acacias*, 33 of *Bamboos*, and 54 of *Eucalyptus*.

ONCIDIUM MARSHALLIANUM.—A plant of this beautiful *Oncidium* in Mr. Day's collection at Tottenham is now bearing five large, branching flower-spikes, on some of which may be counted upwards of forty large, finely-spotted blossoms. Though not quite so showy as *O. Rogersi*, yet when seen in the condition in which it is to be found here, it is one of the most interesting of Orchids, and one which should find a place in every collection of them, however small.—C. S.

SIEBOLD'S DOUBLE-FLOWERED CHERRY.—This grown in the form of dwarf bushes is now very attractive in Mr. Parker's nursery at Tooting. Its flowers, which are delicately tinted with rose, are borne in dense clusters, and in great abundance. Grafted on the common wild variety, such Cherries as this may be made to assume almost any shape, and either as standards, dwarfs, or wall plants, they are strikingly effective.—C. S.

CATLEYA SKINNERI.—A specimen of this useful Orchid is now flowering profusely in Mr. Day's garden at Tottenham. It has borne eleven trusses of bloom, in some of which were no fewer than fifteen flowers of a rich carmine colour. Many of them have been used in a cut state for indoor decoration, a purpose for which they are very valuable, lasting, as they do, in water for a considerable time. Plants that can be brought to such perfection as the one in question cannot be too highly prized.—C. E.

A GARDEN IN DRURY LANE.—I have just seen a piece of work completed by Mr. Weston, which I think should not be lost sight of. It is a movement in the right direction, and if matters of a similar kind were to become a little more general in London, we might claim some day to equal Paris. An old churchyard in Drury Lane—I dare say many have noticed it, having rather a pretentious front for the neighbourhood, a mortuary on the one side of the entrance, and a cottage on the other, while the churchyard formed a playground for the cats—has just been laid out and planted; the space, which would be Grass under ordinary circumstances, is gravel; the paths are asphalted, and the whole place has a comfortable look, and is furnished with a good supply of seats. The "Times" in alluding to this matter, says:—Some of the old tomb-stones have been preserved at the sides, but the main area has been broken up and laid out in flower-beds with a Weeping Elm in the centre and trees and shrubs round the sides. *Michaelmas Daisies*, *Heartsease*, and *Wallflowers* occupy the beds, and the people who visit the garden will be put upon their honour to leave them there. It does not appear that any famous persons are recorded to lie in the graveyard now put to such a good use. Nell Gwynne and Roubillac, the sculptor, were buried within the precincts of the church itself, now represented by the famous work of the architect Gibbs at the corner of Trafalgar Square. Charles Dibdin was interred in the other burial ground belonging to the church at Camden Town. The case is thus very different from that of the Friends' historical burying ground in Bunhill Row, which Miss Hill has tried to have also preserved as an open space. At present this site, dear to Nonconformists and in the midst of a crowded neighbourhood, seems likely to be built upon. The Rev. W. G. Hamphry, the vicar of St. Martin's, on Tuesday, in the name of the Vestry, declared the garden open, and congratulated all upon its being rescued from weeds and prowling cats. He expressed a hope that the neighbouring parishes would contribute to the cost of maintenance. Mr. Shaw Lefevre, M.P., chairman of the Commons and Open Spaces Preservation Society, followed, proposing a vote of thanks to Miss Octavia Hill and the Vestry of St. Martin's for the part they have taken in the matter. He alluded to what had been done in other London parishes—by the Rev. W. Rogers in Bishopsgate, by the Rev. Harry Jones in St. George's-in-the-East, and in the churchyard of St. John's, Waterloo Road, to make the burial places, which once spread disease around, sightly and wholesome. Mr. Thomas Hughes seconded the vote. He said that in that immediate neighbourhood there was the finest garden in London, the garden of Lincoln's Inn Fields; it was used by scarcely any one, and that should be thrown open too.—PETER BARR.

LILACS.

THE Lilacs are now in full beauty in Paris, and form at present the principal attraction of the gardens there. The bushes are pruned closely for two reasons—to insure a strong bloom, and to keep them about the same size every year. They are in lines, as a rule, like soldiers, only more regular. With us this lovely shrub is often left to perish and starve from overcrowding. It is something to even train a common shrub; for so much we have to be grateful in Paris, where the State gardens are virtually in the hands of architects, engineers, and other persons who know little about gardening, and have no sympathy with right efforts therein. The true way to grow Lilacs is not that used in Paris. One ought, perhaps, to apologise for wasting words about a subject that apparently never has excited the least attention. The right method would be to group them naturally on the Grass, or on mounds or slopes, allowing each bush room enough for its full development, that is to say, it should not be starved above or below ground; it should not be tortured into anything like a broomstick and balloon-head as in Paris, or contorted by neglect as with us. It should be allowed to assume a natural form, and be pruned, so that form is never interfered with; moderate thinning of the branches to secure a vigorous bloom would be desirable. There are now so many fine varieties of Lilac that varied and most beautiful small groups or groves could be formed of them alone. To have a Lilac group, or several, or a small grove, or even a few thoroughly well-grown specimens, would be infinitely better than the common plan of scattering a number of plants through the shrubberies to dwindle or to perish.

EARLY PRUNING OF TREES AND SHRUBS.

THE pruning knife is a useful implement, but it should not be used indiscriminately, as it would be better to have trees and shrubs less perfect in outline than to have them slashed and hacked about unskillfully; but there is scarcely a tree planted that would not be improved by a little aid from the knife during the first ten or twelve years of its existence, provided it be done at the right time and in the right manner. The best time to prune Evergreens is just when they are commencing to grow, as then the wounds quickly heal. April is the most suitable month for all that are non-resinous; the pruning of the resinous kinds should be deferred till later. Where large breadths of common Laurels are used for covering banks or are grown in masses for undergrowth, and where, as a matter of course, to keep them in good condition, they must be pruned annually, the pruning is and may be done any time during open weather in the winter, not because that is the best time, but simply from the impossibility of getting through such work where much of it has to be done if it were delayed till spring; besides, when they are cut in closely every year, the growth becomes so dense and carpet-like that the cold, unless very severe, does not penetrate sufficiently to injure them; but where from neglect and otherwise it is necessary to cut off large branches or to head them down, then the pruning should be delayed till spring. All spiral-growing shrubs, such as the Arbor-vita, Irish Yew, Junipers, &c., whose beauty mainly consists in perfect symmetry and exactness of training, should be carefully and judiciously pruned. Without this attention they become unwieldy in size, and are liable to be blown about and injured by wind. But in pruning no evidence should be left of the operation beyond the improved outline imparted to them. If long cuts be visible, then the work has been recklessly performed. Every projecting branch that it may be necessary to remove should be cut back to its junction with another nearer the trunk of the tree, making the cut short and clean. In the management of handsome specimen trees, or of those that are intended to form such specimens, the amount of pruning actually required will be small if taken in time. Even all pruning of forest trees should be done before the branches that may require amputation become large. Pruning trees severely that have long been neglected is an operation of very doubtful utility if sound timber be the object, for, wherever a large branch has been removed, decay will be found in the wood when sawn up—but this fact need not preclude attention being given to balancing the head and removing rival leaders

When a tree is young is the time for pruning it and for securing a proper foundation for handsome proportions; if not done then, the most assiduous attention afterwards will not mend matters, and may do positive harm. All deciduous trees are usually pruned in winter when the leaves are off, but flowering shrubs, such as Lilacs, Ribes, &c., are best pruned after the flowering is over. By removing annually the longest branches, there is always a continual succession of young wood coming up to replace that removed, and, therefore, there is never any dearth of flowers. Treated in this way large shrubs may remain in good condition many years. Standard Thorns form very handsome objects grouped or scattered about a lawn or park, and if the long, strong branches be shortened back for the first eight or ten years, they form beautiful weeping heads, far superior to anything I have ever seen when left unpruned.

E. HOBDAV.

Trees on which Mistletoe Grows.—In the remarks made lately on Mistletoe, I have not seen it noted as growing on the Azalea and Nut tree. At Eridge Castle, near Tunbridge Wells, there is a specimen of it on the former, and in the verger's garden at Southwell, it grows on the latter. This month a very interesting trip might be made to see the Mistletoe on all the deciduous trees and shrubs whose stations are known. I have still a vivid recollection of a wild-geese walk, which I took above twenty years ago, in search of the Oak at Eastnor Castle (near Ledbury), when the leaves were fully out. Of course at such a season the search was fruitless. Here in Scotland the only trees upon which Mistletoe has been as yet grown, are Apples, Thorns, Mountain Ashes, Pears, Limes, Almonds, and in the Botanic Garden, Edinburgh, there is a fine specimen on an American Oak; also on black Poplar, and Mes-pilus. Gordon Castle is, I believe, the farthest place north at which it grows, although Keith Hall, Aberdeenshire, is probably both higher and colder; there it may be seen on the Mountain Ash. Berries grown at Hermiston House, in the neighbourhood of Edinburgh, germinated on trees in Wigtonshire, when fruit from Herefordshire failed. I am of opinion that failure oftener occurs through smearing unripe berries in situations in which they are intended to grow than from any other cause. A covering of muslin over the seeds here served to attract the inquisitive sparrows; so I discarded that plan, and now I smear the fruit on the under side of a young branch.—F. J. HOPE, *Wardie Lodge*.

Flowers in Hospitals.—With the return of spring, our hospitals begin to look gay with flowers, and, according to the "Lancet," there is scarcely a ward to be found which is not decorated with its quota of Primroses and Hyacinths. Do those who so thoughtfully send these beautiful things from the bright country into the sick wards of our dusky town ever think how their presents are displayed? The "putting up" of flowers is an art which hospital nurses are very often little skilled in, and between a lack of talent or of time, and a want of suitable vessels, the flowers are often not shown to the best advantage. Wallflowers tightly jammed into a half-pint mug scarcely look their best, and a common washing-basin is hardly a suitable vessel for the display of Primroses. But what is to be done if no proper flower-vases are to be had? No hospital committee would feel justified in spending money on such trifles, and no one seems ever to think of making such a present, which would be most acceptable to a hospital. In the present day when the fashion in table decorations changes every season, one would suppose that disused and obsolete flower-stands are to be found in almost every glass or china closet, and we feel sure we have only to make this little want of our hospitals known to ensure its being speedily satisfied.

The Spanish Onion at Home.—In the April number of the "New Quarterly," Mr. John Latouche thus describes the culture of Spanish or Portuguese Onions now so largely imported to Covent Garden, and other vegetable markets in this country:—"Oporto is the chief port of exportation for the large variety of Onion which is known in trade as the Spanish or Portugal Onion. Its cultivation is as follows:—In the month of October the seed is sown in a sheltered spot in very well manured seed beds. In about ten days the plants appear, are watered in dry weather, weeded, and the surface occasionally stirred with a sharp-pointed stick. The young plants, not subjected to any severe frost, for the thermometer very seldom falls below 35° of Fahrenheit, enjoy an uninterrupted growth till springtime. In March they are taken up, being then some 5 in. to 8 in. in height, and planted from 9 in. to 12 in. apart, in furrows made by the hoe in well-ploughed and harrowed land. The furrows are filled to the depth of 3 in. or 4 in. with well-rotted manure, with which the roots of the young plants are placed in actual contact. A very essential condition of the successful cultivation of the Onion is water. The abundant and timely irrigation

of the growing crop requires great and constant care. After transplanting, the crop has two or more hoeings and weedings. With the last weeding are sown either White Turnips, Maize, or more rarely, Grass seeds. The Onion crop is off the ground in August, and sometimes in July."

Influence of Time of Pruning Pear Trees on Season of Blooming.—I have read Mr. Fish's communication on this subject (see p. 329) carefully, but I find nothing in it to strengthen the views which he had already expressed. He goes into a long physiological disquisition upon the action of the sap and vital forces connected with vegetable life generally. But I may remind Mr. Fish that conclusions based on nothing stronger than analogy drawn from plants different in their habit and nature from those under consideration are wholly outside the question, and have not the slightest weight in supporting his views. The subject under discussion lies within very narrow limits. Mr. Fish says that the time of blooming in Pear Trees is accelerated by early pruning. I say that so far as my own experience and observation go, it is not, and I have given numerous instances supporting my opinion, and I could give many more if necessary. The proof of his assertions rests with himself, and so far he has failed to furnish them. We have now-a-days too much theory connected with horticulture, that is not only unsupported by facts, but totally at variance with the results arrived at by actual practice. Mr. Fish tries to turn the strong confirmatory evidence in support of my views afforded by the storm-dismantled tree to favour his own, and although he envelops the plain facts of the case in a cloud of assumed possibilities which may mislead those who are not acquainted with the subject, they are not likely to have any weight with those who have a practical knowledge of fruit culture.—T. BAINES.

Vine Growing without "Steaming."—As I have grown Vines for many years on the principle that your correspondent condemns (see p. 292), viz., syringing and steaming, I should be glad to know how the ravages of red spider are to be prevented if water be not used? I have been told that a humid atmosphere is death to it, and I have found when I stop syringing and have a dry atmosphere in order to colour the fruit, red spider makes its appearance.—NEMO. [When I condemned "shutting up and steaming the house with moisture," I did not mean it to be inferred that the use of the syringe was to be discontinued when required, but only that a prolonged vapour-bath was ungenial to the Vine. If "Nemo" treat his Vines on the "principle that I condemn," and finds, when he stops syringing at the colouring period, that they are attacked by spider, he need not be surprised. But let him begin at the beginning by giving his Vines plenty of air at all times, and less of the steaming treatment, &c., and he will find the foliage produced to be of a different and more beating texture, and not liable to be attacked by insects—something, indeed, like the foliage of Vines grown out-of-doors, where they are never seriously attacked by spider, so far as I am aware, either in this country or in the Vine-growing countries on the Continent. The vapour-bath treatment produces weakly foliage, which cannot resist even a natural degree of dryness, and it soon falls a prey to insects.—C.]

Conditions Affecting the Growth of Timber.—In my opinion if landowners would plant the same quantity of trees on two acres which they now plant on one it would pay them better, especially if the land were well trenched before the trees were planted. Where there is a deep alluvial soil, the trees may be planted thicker than on poor land; but, for a profitable speculation, the question is, which is the best kind of timber to plant on the different kinds of soils? We know, as a rule, that the Oak grows best on the old sandstone formation, Larch on the new red sandstone, and Ash and Beech on the limestone. Spruce and Scotch Fir will grow well on most soils except mud; and the Silver Fir grows best on sand or on a gravelly subsoil. Much of the wood that is now planted is for game covert, and, being planted thickly, it makes a good covert for a few years; then the lower branches die off, and we have no covert. If Larch and Spruce were planted, then the ends of the lower branches would touch the ground, and make a good covert for years.—G. F. B.

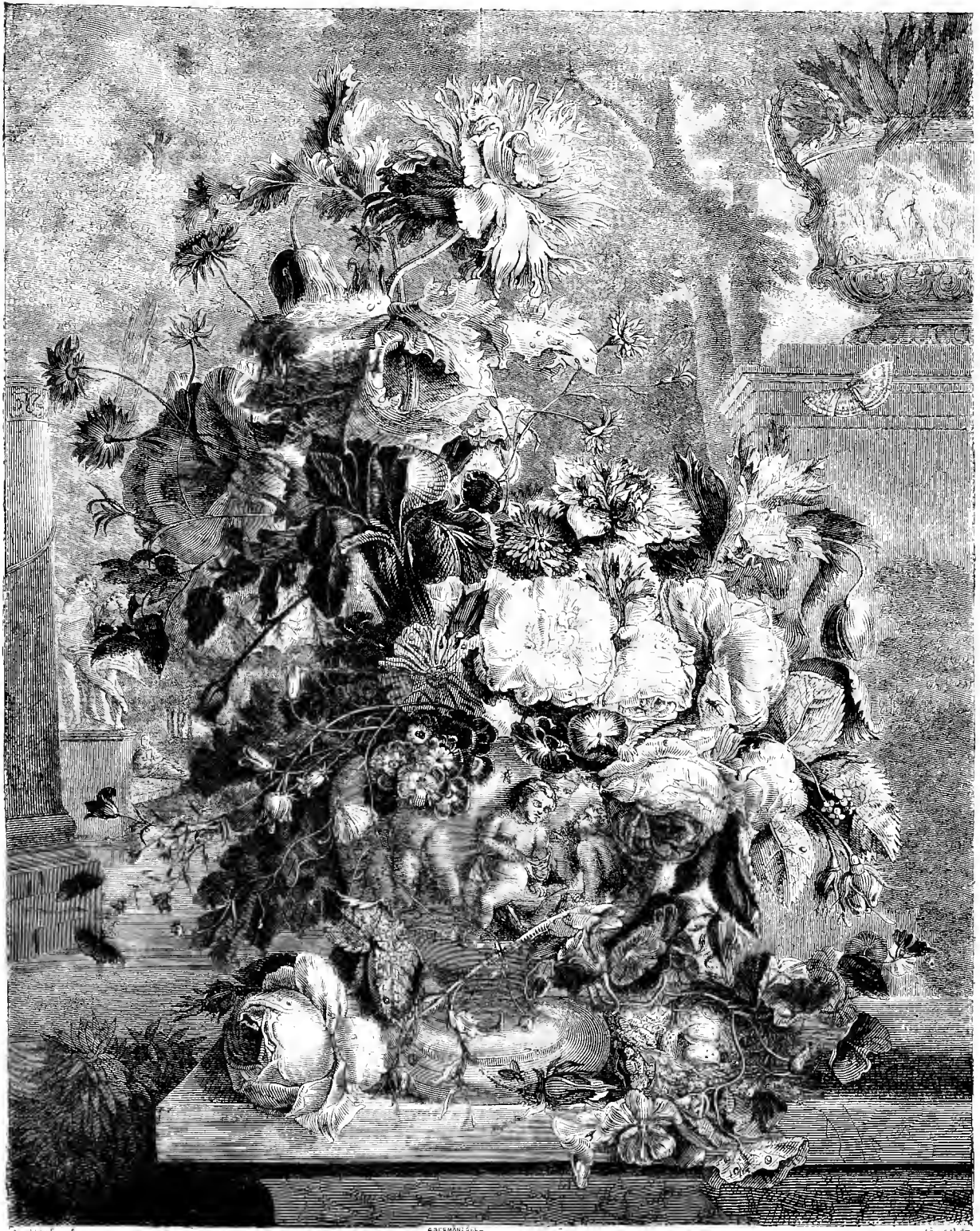
Botryanthus (Muscari) Gussoni (Todaro)—Through the kindness of M. Max Leichtlin I have lately bloomed this little-known species. It has long, rather broad leaves, recurved, and appearing late in the autumn. The flower-buds begin to show themselves at Christmas, but do not expand till March. The raceme consists of a few large purple-blue flowers shaded with white. It comes nearest to *M. commutatum*; indeed, Mr. Baker thinks they are identical; but with me *M. commutatum* exhibits differences in habit, growth, and time of flowering, which lead me to think that it is distinct.—H. HARPER CREWE.

Paraffin-oil-coated Seeds v. Birds and Mice.—It has been stated in a contemporary that seeds dipped in paraffin oil would not be touched by birds or mice. As this seemed a simple preventive, before sowing my Salady seeds three days ago I rubbed them over with this oil as directed, and I find that many of the seeds have, nevertheless, been eaten by mice. It is therefore evident that this oil-cure is useless.—A NORTHERN GARDENER.

THE GREAT FLOWER-PAINTERS.

JEAN VAN HUYSUM—BORN 1682, DIED 1749.

THE artists of Holland were the first to treat the art of flower-painting in a truly naturalistic spirit. In the art schools of France, Germany, and Italy, flower-painting had, it is true, been skilfully practised, but almost exclusively from a simply decorative point of view. Graceful grouping, fluent pencilling, and harmonious colouring had been brought to great perfection by many of the artists of these countries, but always with a view to a subsidiary art, as an agreeable adjunct to some other work which was always principal, while the flower feature was quite secondary; for instance, as an adjunct to the foreground of a picture, as an enrichment in the coloured decorations of monumental architecture, or as a pleasing feature in the ornamentation of panels, walls, or ceilings of apartments. Dutch artists, on the other hand, influenced no doubt by an intense love of gardening, painted flowers for their own sake, for their colour-beauty, and for their natural graces. It was from Dutch gardens that the glorious old Cabbage Rose was first sent into European markets; and it may have been the combination of its rich perfume with the luxuriant mass of beautiful petals culminating in a crowded centre of which deepens in colour to a glowing carmine, that decided the younger Van Huysum to become a flower painter, and, *par excellence*, a painter of Roses. His father, Juste Van Huysum, was an art-manufacturer well known for his refined taste as regarded all kinds of garden decorations, from delicate trellis work to the higher classes of garden ornament represented by stone or marble vases more or less enriched with sculpture, which frequently reached a high standard of art. These objects, to the contemplation and study of which Van Huysum had been accustomed from childhood, were frequently introduced in his subsequent pictures, for the composition and painting of which he threw up all interest in his father's more profitable enterprises. His treatment of floral compositions, which soon acquired for him an European reputation, was founded on a pure worship of Nature. He never tried to superadd a grace of his own. Previous flower-painters had often, in their almost strictly decorative treatment, adopted an arrangement akin to positive uniformity—the arrangement of their groups having, as it were, a centre, and two wings. Then came an arrangement founded on a kind of symmetry of a higher kind, in which parts *balanced* each other, rather than being forced into an almost mechanical correspondence of form and dimensions. Van Huysum entirely threw over all these conventionalisms, to which, as in the subject here represented, he opposed randomly massed profuse groups of gorgeous flowers, just as they came to hand, fresh gathered in the early morning, with the dewdrops still upon them. In our first illustration the magnificent group has evidently fallen together with a wild profusion and natural grace which the artist did not seek to trim, and balance, and guide, but to reproduce purely and simply, and free from any of the fancied elegancies of mere art. On the pedestal it lies, just as it may have fallen, when the rest of the beautiful mass was thrust reverently, without trimming or sorting, into the richly sculptured marble vase. In the mass of beauty which this picture presents, and which is not a "composition," but a natural falling into place of a mass of flowers, we have rich selections of the garden favourites of the time. First, the grand Rose, at that time the new glory of the gardens; then, other specimens of the same flower, contrasted with the best of the white Roses then known; and which is still to be found in many old-fashioned gardens; then we have an audacious but splendid double Poppy towering above the rest of the group, and lower down Anemones, Irises, Centaureas, and, conspicuously, a bunch of Auricula, treated as none have treated that flower since Van Huysum. It was a favourite flower of the Dutch cultivators, and specimens are to be found among the truthful representations of Van Huysum, which even modern culture, with all its recent successes in the development of that genus, has not yet surpassed. The fame of Van Huysum reached England before his mid-career; and Sir Robert Walpole commissioned him to paint two pictures in his most elaborate style. Our first example, just described, is probably one of them, as it was exquisitely reproduced by our own great mezzotint engraver



Poppies, Roses, Anemones, Auriculas, Convolvuluses, Tropæolums, Campanulas, &c.

(After VAN HURSTUM).

Earlom, whose work is an acknowledged masterpiece of the art, and immeasurably finer than the clever and very beautiful cut, on a reduced scale, which we are enabled to present to our readers. A second smaller group (see p. 351), consisting mostly of Roses, Anemones, Larkspurs, and Carnations, exhibits a similar grace and *abundant* of treatment. It will be noticed that insects, birds' nests, and other beautiful objects associated with gardens, were lovingly treated by the delicate pencil of this exquisite painter; indeed, his birds' nests with eggs have never since been approached in elaborate beauty of treatment, till the time of our late lamented artist Hunt, and his more or less successful followers.

H. N. H.

THE INDOOR GARDEN.

CHINESE PRIMULAS AND THEIR CULTURE.

The great improvement which these have undergone within the last few years, and the freedom with which they produce their flowers at a season when there is little else to render plant structures attractive, make them general favourites, and those who would have them early in bloom and in first-rate condition, should lose no time in sowing the seed. This should be done in pans of finely sifted, light, rich soil, pressed down moderately firm, and then watered, and allowed to stand a few hours to drain. Many seeds are lost or fail to germinate through inattention to this, as they are either washed bare, or become so sodden as to cause them to rot. In recommending the use of light soil for such choice and delicate seed as that of this Primrose, it should be generally understood that it must have sufficient cohesion not to lie loose and hollow, else the air would pass so rapidly through it as to carry away the moisture; and if the seed germinated at all, the plants would stand but little chance of making headway, on account of their inability to get proper root-hold. In raising seedling Primulas the first step is to well drain the pots or pans in which the seed is to be sown. This done, the next thing is to add a sufficient amount of soil, which should consist principally of leaf-mould, loam, and peat, in the proportion of two-thirds of the leaf-mould and peat to one of loam, so as to fill the pots or pans about half full, and then to finish off within an inch of the top with the same kind of material finely sifted, during which process the whole should be regularly pressed down in order that the seed may have a firm bed. The soil ought then to be watered with a fine-rosed watering pot, and allowed to drain for a few hours, when it will be in proper order for sowing. This should be done by scattering the seeds thinly and regularly over the surface, into which they may be slightly pressed, and then covered over with very fine peat and sand, the latter rather preponderating, so as to give weight and prevent the air reaching the seed too readily. I prefer this plan of treating all choice seeds to that of having such a loose, gritty soil under them, as is so often practised, and which is, in nine cases out of ten, the cause of failure.

Seed Sowing and Subsequent Treatment.

Next to having suitable soil, the most important thing in raising young Primulas, or, indeed, any other plants, from seed, is to maintain the latter in a uniform medium state of moisture, an end which may be best accomplished by laying a piece of glass on the top of the pot or pan, and on that some Moss or thick brown paper to shut out the sun and light till the seed germinates, when the young plants must be placed near the glass to keep them dwarf and stocky, and prevent them from drawing. A Melon or Cucumber bed, or any hotbed frame, is a suitable place for them, the moist, genial atmosphere of which suits them far better than any house, on account of the uniformity there always is in the humidity and heat arising from manure beds. Primulas, being shade-loving plants, should be screened from the sun by a thin piece of canvas, and nursed on close to the glass till ready for pricking out. This should be done, as soon as they are large enough to handle, in fibry peat beaten up fine and mixed with a little loam, or in some thoroughly decomposed leaf-soil that has been passed through a sieve, to which about one-third loam and a little dry, flaky cow manure, well broken up, should be

added. In this mixture they will soon make a fresh start, and grow vigorously if placed in any hotbed frame, or house where they can enjoy a temperature ranging from 55° to 75°, with a moist atmosphere and sufficient air, according to the state of the weather. If allowed to remain too long together after being pricked out, they quickly become drawn, and this should be avoided by timely potting in 3-in. pots, using the same kind of soil for the purpose as recommended for the earlier stages of growth. After potting, they should be returned to some close pit or frame, or set on the shelves of a house, where they can get a little moist heat and shade during bright sunshine, until they again get a start, when by the middle of June they may be placed in their summer quarters. The best receptacle that could be provided for them at that season is an ordinary garden frame, so placed as to be partially shaded by some tall tree or building, so that the sun does not get at the plants during the heat of the day, and this will be found far better than resorting to mats or other appliances that not only keep off the sun, but obstruct the light at the same time, and thus cause the plants to be weak and drawn instead of having that stout, sturdy habit which they always possess when grown under favourable conditions. Another objection to artificial shades in cultivating Primulas is, that they are seldom on when most wanted, or remain too long over them in the afternoon; whereas, if the frame be so placed as not to require their use, much unnecessary labour is done away with, and there is no risk of injury happening from inattention. The floor of the frame should be rendered hard and impervious to worms by spreading over it a good coat of coal ashes, rammed hard down after being watered, on which to set the plants, and the distance of these should be about 1 ft. from the glass, which will be quite near enough during summer weather. Their treatment during that season will consist in supplying them properly with water, of which they require liberal supplies, and in keeping them damped overhead every afternoon, so as to maintain a humid atmosphere round them, with a cool, damp bottom for the pots to stand on, which is a very important matter in the successful cultivation of Primulas. As soon as they have become well rooted, they should receive their final shift into 6-in. pots, using the same kind of soil as before; and in order to keep the plants erect and steady, it will then be necessary to insert three small sticks around each, placing them triangularly close up to their stems, and about an inch or so above the soil, in which way they will afford perfect support. By the end of September it will be time to remove them to their winter quarters, for if allowed to remain longer in the frame, the damp would cause their lower leaves to turn yellow, and spoil the beauty of the plants, as they never again recover their healthy appearance. A light airy shelf near the glass is the most suitable situation to keep them during their period of flowering, as their blooms become much brighter and stouter than they do farther away from the light, where damp is likewise sure to affect them. The temperature of the house in which they are placed should never fall below 45°, nor be more than 10° above that during the day by artificial means, as a warm, dry atmosphere, ranging, as regards heat, anywhere between those two points, will suit them perfectly. In watering, great care should be exercised not to wet the crowns of the plants, as the water lodges at the axils of the leaves and engenders canker, a disease to which Primulas are rather subject during the winter season if kept too wet or in a low temperature. Clear liquid manure—such as may be made from cow or sheep droppings, or the drainings of the farmyard—is of great assistance while the plants are producing their bloom, when it should be used freely in a properly diluted state; and, if a little soot be added at the time of making the manure water, the plants will be much benefited in colour and healthy appearance, as soot is a stimulant that always shows itself in a very marked manner whenever applied.

Seed Saving.

In order to maintain a first-class strain, annual selections of the best should be made for the purpose of seed saving, to produce which in a free manner the plants must be set in a warm dry house close up to the glass, where they can get

plenty of sun and air to ripen and disperse the pollen. Thus situated, there will be no difficulty in obtaining plenty of seed without the aid of artificial fertilisation, to which many resort when desirous of rendering them as profitable as possible. Fortunately, there are now many semi-double varieties that seed almost as freely as the single kinds, and this is a great boon to amateur cultivators, on account of the difficulty there is in propagating double kinds, which have to be done by means of cuttings, and which require some considerable skill and attention. The present is the best time of year to set about the operation, and the proper mode of procedure is to divide the plants with a sharp knife, securing to each separate piece as large a portion of the thick fleshy stem as can be got, and with as many roots attached as possible. This done they should then be trimmed of any dead or decaying leaves or leaf-stalks, and potted in sandy peat and leaf-mould in small pots and afterwards placed under hand-lights, where they can be kept close and warm till rooted. The stove or any forcing house is just the place for the purpose, and, to prevent the soil drying, it is a good plan to plunge the pots in damp Moss or Cocoa-nut fibre, as no water must be given till they have callused and begun to form fresh roots. In potting the cuttings the best way is to fill the pots loosely, and then to thrust a finger into the soil to make a hole sufficiently large to receive the base of the cutting, which should be inserted up to the lower leaves, and then filled round with pure, sharp silver sand, which will absorb any moisture at the cut part, and prevent it from damping. All that is necessary while they are under the protection of the hand-lights is to shade from bright sun, and, should the leaves flag severely, to give a bedewing over them, but not sufficient to run and wet the soil around them. When rooted they may at once be shifted into 5-in. or 6-in. pots, in the same kind of soil as recommended for the single-flowered varieties, and be treated in all respects during the summer in like manner. Being somewhat more tender than they are, a few degrees more heat are requisite during the winter, but, as *Primulas* are impatient of a close confined atmosphere, air should be admitted on all favourable occasions.

S. J.

POINSETTIAS SINGLE AND DOUBLE.

ALTHOUGH the new double *Poinsettia* has done well in many places, and notably so with the firm who first brought it into notice, its propagation has been pushed so hard to meet the demand and get up stock, that up to the present time it has scarcely had a chance of showing its true character; therefore, grand as it is, it may yet surpass all the anticipations that have been formed respecting it. Some object to *Poinsettias* having such lanky stems: but this only occurs when they are improperly treated, either by being started too soon, or having more heat than they require. In the former case they get drawn up before there is sufficient sun and light to harden and consolidate their growth, which, in plants that are naturally of a somewhat soft character, is generally rapid. For certain purposes, however, tall plants are very desirable, as, for instance, to overtop others, so as to produce variety, a purpose for which *Poinsettias* are specially adapted, affording as they do in such positions a character and individuality quite unattainable by plants of other kinds. During last winter I had them in use among a general collection of greenhouse plants, above which they stood out clearly at a height varying from 1 ft. to 1½ ft., and as they were associated with the white-flowered *Richardia æthiopica* and *Chrysanthemums* of a light colour, some idea may be formed of the effect which they produced. When required for purposes of this kind, single-stemmed plants are best, as they can be dotted about without interfering with anything beneath them or producing too great a mass of colour in one place. Those who have hitherto treated them as stove plants, may be surprised to find them spoken of as being used in a greenhouse; but if they be kept as dry at the root as they will bear without flagging, and the temperature is never allowed to fall below 50°, they will stand without suffering in the least, provided the atmosphere be kept thoroughly dry and the plants are so situated as to be out of the reach of draughts or cold currents of air. If they can be accommodated

in this way there need be no hesitation in using them in such structures, but in all cases before being removed they should be gradually inured to the change, in order that the variation in temperature may be brought about by degrees, instead of a sudden transition that chills both root and top at the same time, and paralyses the whole energies of any plant subjected to such treatment. Although *Poinsettias* are fond of bottom-heat, and bear larger and finer-coloured leaf-bracts when they have such stimulus afforded them, they are more impatient of change afterwards, and never endure cold so well as they do when grown without its use. This being the case, it is therefore advisable to simply set the pots on the stage in any cool stove when taken in from cold frames in autumn. In doing this they should be so placed as to have the heads of the plants within a few inches of the glass, that they may have the benefit of all the light possible in order to get the leaves of a stout, thick texture, and their colour as bright as they are capable of attaining. The difference not only in these, but in all other flowers when treated as above, is surprising in regard to the time during which they will last, either in the cut state or on the plants, as compared with those that are grown under less favourable circumstances.

Culture.

As *Poinsettias* are required for various purposes and of different sizes, they should be started and propagated a few at a time, at intervals of a month or so from now to the middle of July, as by so doing they may be had ranging from 1 yard in height down to 1 ft. or less, with heads of floral leaves in proportion to the size and strength of the plants. These may be grown with either single stems or several, so as to form large masses of colour, but in the latter case it is necessary to cut back such as flowered last year, leaving a bud or two at the base of each, which will break and make strong shoots almost equal to any that are struck from cuttings or eyes at the present time. Premising that the plants are now dry and at rest, stowed away on the back stage of the stove, the proper course will be to take a portion of them and head them back, saving the tops so removed for cuttings. The plants ought then to be placed where they can get a brisk heat in which to start them, and as soon as that takes place they should be shaken out of the old soil and re-potted in smaller pots, with the view of giving them another shift later in the season. This done they should be plunged in a gentle bottom-heat for a week or so, in order to assist them in forming fresh roots; after that they should be accommodated in some light airy position near the glass, such as a shelf would afford, where they can be syringed and have a temperature ranging from 60° to 70°. Managed in this way the growth which they make will be stocky and short-jointed, and altogether of a more satisfactory character than any which they make when placed on a stage overshadowed by other plants, as is frequently the case. The soil best suited for *Poinsettias* is a compost consisting of about equal parts peat and loam with just sufficient sand to keep it open and porous, for though they require copious supplies of water during summer, they dislike stagnant moisture or any approach to it at any time; neither will they bear a dry atmosphere, and therefore both must be guarded against, or the leaves will inevitably turn yellow and fall off, or become so infested with red spider as to be greatly disfigured, thereby spoiling the beauty of the plant. During June, July, August, and September, the best place for them is a cold pit where they can be set on a hard floor of ashes impervious to worms. In a position of this description they are more under control, and far better circumstanced than they would be if kept along with the usual occupants of the stove, most of which require shade, while *Poinsettias* are benefited by exposure to the full rays of the sun, except perhaps for an hour or so during the hottest part of the day, when the thinnest of shades, such as a piece of hexagon net may be thrown over them; this is, however, only necessary in cases where the glass is of an inferior kind. By closing early after a good syringing, much of the solar heat may be conserved for the night, and a genial moist atmosphere maintained, which will keep the plants in luxuriant health and free from red spider, which is ever ready to attack them, and can only be warded off by steadily pursuing the course of treatment just

indicated during the whole of the summer. In order to prevent any rapid drying of the soil, which generally takes place when the pots are exposed, it is a good plan to have some loose littery matter, such as a few leaves, straw, or bracken, or anything of that kind scattered around them, so as to afford shade without lying sufficiently close to obstruct the air, which any other close plunging material would do to the detriment of the roots. Towards the end of September, when the nights begin to get chilly and cold, the plants must be moved to warmer quarters, in order to assist them in developing their coloured leaf-bracts, in which they may be greatly aided by the use of clear, weak liquid manure whenever they require water, a practice that is far better than using manurial matter in the soil, as then they get it long before it is needed, and being thus stimulated a gross growth is the result; and when this takes place, it is scarcely satisfactory so far as flowers are concerned.

Propagation.

Poinsettias admit of being propagated in a variety of ways, such as by means of single eyes, cuttings made of the hard ripened wood, or any of the short young shoots taken off with a heel. The latter are the best for forming small dwarf plants for table decoration and similar uses, and may be taken off any time from now to the middle of July, according to the size and height required. With a brisk bottom-heat of from 80° to 90° and a close, moist atmosphere, with proper shade, they will root readily, and may then be potted on and treated as recommended in the case of old plants. In making cuttings from last year's wood, the firmest and best should be chosen and divided into lengths of about 3 in. each, of which pieces should be so cut as to have a bud or joint both at the base and top. If these be then inserted around the edge of a pot in sharp, sandy soil, and nearly buried to the tips in the same, and then plunged in heat, as mentioned above, scarcely one will fail. Single eyes are treated much after the manner of those of Vines, and only differ from cuttings in the way in which they are made, and in having one joint or bud instead of more; but except in cases where it is desired to make the most of every piece of wood and increase stock to the utmost extent, cuttings are the best and more to be depended on than eyes for rooting. In propagating from eyes, about $\frac{1}{2}$ in. of wood should be left above and below the buds, and each piece should then be laid with the eye uppermost in prepared pans or pots of sandy soil so as to be slightly covered over, after which a gentle watering and brisk heat will soon start them into growth. S. J.

Draining Cutting-pots.—Mr. Plimley, of Acton, who grows plants very successfully for market, showed me the other day a plan of draining cutting-pots which is not often adopted elsewhere. Instead of crocking them in the ordinary way, Mr. Plimley uses inverted flower-pots of as large a size as the pots for the cuttings will admit, and over the hole is placed a small piece of crock to prevent the soil from falling through. When the cuttings are inserted in the pots they are placed on a slate stage, under which there is a hot-water tank, and are covered up to the rim with Cocoa-nut fibre; the heat then passes up the centre of the inverted flower-pot as well as round the sides of the cutting-pots, and thus the soil is warmed equally, and the cuttings root regularly, and are all struck and fit for potting off at the same time. Soft-wooded plants, such as Carnations, Verbenas, Fuchsias, &c., are struck in this way in four or five days.—W. S.

Pentas carnea.—Few plants are more easy of cultivation than this, and few among our stove and greenhouse plants better repay the little trouble they require to bring them to a state of perfection, yet in private establishments good examples of it are seldom found. Cuttings of the young wood will strike readily at all seasons of the year, and under liberal treatment will in a very short time furnish neat and floriferous plants. Its chief value, however, consists in its being capable of being brought into bloom as easily during the dull months of winter as at other times of the year; all that is required is to keep the shoots regularly stopped so as to induce the plants to grow bushy, and, if this be discontinued in the autumn, nearly every point will produce a good head of delicate pink and white blossoms during the winter. In a cut state the blooms are very effective and valuable, and after one crop of flowers has been cut, the plants will, if kept clean and well watered, soon throw out shoots that will fur-

nish another supply. Plants of this *Pentas* are now blooming freely in Messrs. Rollisson's nursery, in which state they have been all through the winter.—S.

Raising Alpine Auriculas from Seed.—These are easily raised from seed, and if we persevere in saving seeds only from our best flowers, we shall in time get together a most interesting collection. This is a good time to sow the seeds, and it is better, in order to guard against accidents, to sow in pots or pans, which should be well drained, and the soil should be rather sandy. Do not cover the seeds too deeply, and place a thin layer of Moss over the surface of the soil to keep it moist and so encourage germination. When they come up and require more space they may be pricked off into other pans, or be planted out in a prepared bed in a shady border. They will all flower the next spring, and they are very interesting subjects to have in pots at this season when in flower for decorating a cool house. They are everybody's plants, as they are neither expensive to raise nor to keep.—E. HOBDAV.

Gardenias Planted out v. Pots.—During the past few years many growers of Gardenias in private establishments as well as market gardeners, have planted them out, with the view of obtaining more cut bloom from them than can be got from plants in pots. I have, however, been lately informed by several cultivators of Gardenias for market, that when grown well in pots more profitable results can be obtained than when planted out, inasmuch as the plants can be brought into bloom at whatever time they are most required, and the flowers from good pot plants are more perfect in form than those from bushes planted out. Another advantage in having them in pots is that in the event of the house being required for any other purpose, the plants can be quickly removed. For furnishing a wall or as permanent plants in a conservatory, a few Gardenias planted out answer well, but those who grow them for the sake of their blooms in a cut state will probably make a mistake if they plant them out. Gardenias are liable to be attacked by mealy bug, which may be effectually eradicated by dusting them all over with soot, with which has been mixed a little guano. The foliage of the plants should be perfectly dry, and care taken to dust the mixture into every little crevice. In this state they may remain for a few days, when the foliage should be thoroughly washed by means of a syringe. If done before the plants commence to make young leaves, there will be little danger of their sustaining any injury.—C. S.

Primula amœna alba.—Mr. Harris (see p. 329) has probably got only the common *Primula cortusoides* alba, and not the true *amœna* alba. The flowers of the latter are large, perfectly white, and devoid of any green stripe, but they are unfortunately both flaccid and pendent, and therefore not so showy as the erect forms of *amœna*; it is not quite so robust as either *P. amœna*, *hiscina*, or *grandiflora*, but nevertheless it is easily grown, and, under ordinary care and cultivation, flowers freely. Some of the newer forms, such as *P. maxima*, *corules alba*, *laciniata*, &c., will be found to be decided improvements in habit on *P. amœna* alba, having stout, erect stems, and flowers large in size, and facing the observer boldly. It is not difficult to produce good heads of bloom. When the plants are out of flower, turn them out under a shady fence or into a cold frame for the summer, and in the autumn knock the balls of soil out of the pots, free the roots entirely from it, and, selecting the strongest crowns, plant three into a 4½-in. pot or six into a 8½-in. pot. The weaker crowns may then be planted more thickly, and should some of these not flower, they will at least make strong-blooming crowns for the ensuing year.—A. D.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Centaureas from Seed.—*Centaurea candidissima* is extensively used for the summer decoration of the flower garden, and when any difficulty is experienced in raising cuttings, as is often the case, I would recommend it to be raised from seeds early in spring. If they be sown thinly in well-drained pans filled with light, fine soil, and slightly covered and placed in a gentle heat in January or February, they will soon germinate; and if the young plants be pricked off into thumb pots and afterwards shifted into 3-in. ones, they will be much more stocky and useful by bedding-out time than plants struck from cuttings in autumn and kept through the winter.—S. W.

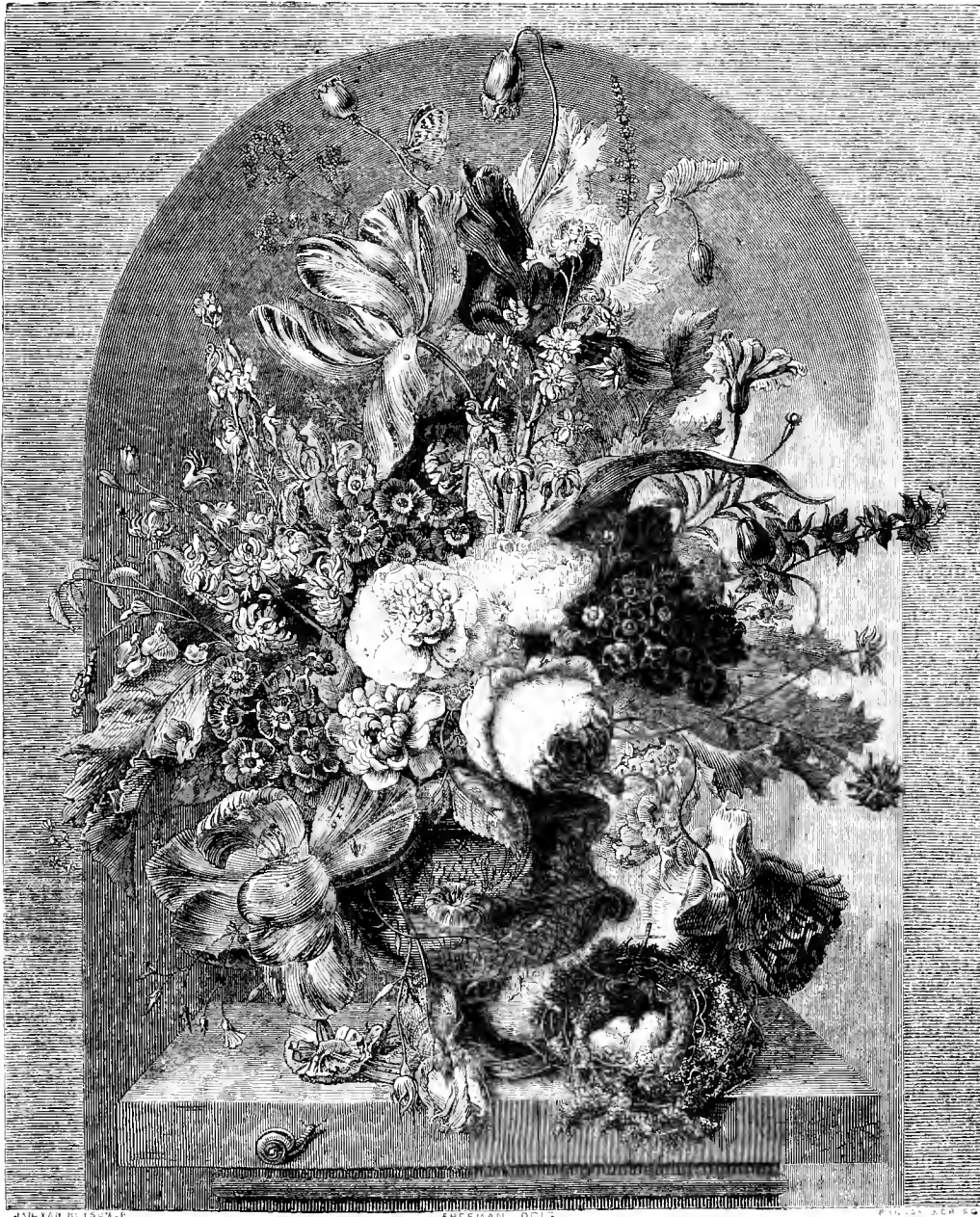
Fritillaria præcox for the Conservatory.—When grown in 6-in. pots this plant is well adapted for placing in front rows on conservatory stages. Its blooms, though not very effective, are nevertheless interesting, and contrast well with the brilliant colours of other flowers with which they may be associated. They may be seen used in this way in the conservatory at the Pine-apple Nursery, where pots containing several plants are furnished with from eight to ten large drooping blossoms.—E. H.

Black Ants and Rose-buds.—The buds of our early pot Roses were nearly eaten up this season by black ants. We placed saucers of water under each plant and set them on inverted pots, which prevented further attacks. Although the ants do harm in some cases, in others they do good. During the time when our early Peaches were in bloom, myriads of them assailed the blooms, and I believe aided in setting the fruit. Next to the bee they are the most useful agents in early Peach-houses.—W. W., *Godalming*.

SOWING SEEDS.

THIS is an operation which depends wholly on when and how to sow, in what soil to sow, and what temperature to give the seeds during their germination and early growth. As to the time, a great many sow seeds too soon. Comparatively few seeds will grow in a lower temperature than 40° or 45° . Hence the risk and loss of sowing small seeds of flowers or other plants

off or checked in such a severe manner that they hardly get over their rough treatment throughout the season. A great deal of this mischievous treatment arises from sowing too early. Had the half-hardy and sub-tropical plants for the flower garden, for instance, been sown a month later, they might have been grown right on and turned into the open ground in good health and robust strength, when they would



Roses, Hyacinths, Tulips, Larkspurs, &c. After VAN HURSUM. (See p. 348).

in cold, wet soils. Better far to wait a week or a month longer for a dry, warm bed, than to sow in a cold or a wet one. If the cold earth do not always destroy seeds, it keeps them from growing, holds them fast, and weakens and injures them by delay. Even seeds sown under glass or in heat are, as a rule, sown too soon, as seedlings should have no check or arrestment of growth between the seed pot or pan and the open air. Thousands of seeds are sown early, nursed in heat or in close quarters till they become of a large size, and are then hardened

have grown away at once without remaining at a standstill for weeks or more after being planted—a not uncommon result.

Mode of Sowing.

The manner or mode of sowing is perhaps of as much importance as the time. The three great errors are—sowing too early, too deeply, and too thickly. Many seeds, especially small ones, require to be sown very shallow, or, in other words, to have little or no covering. But that is no reason why they

should be cast upon the surface and exposed to light and air; for, though there are a few seeds that will grow on the surface, fully exposed, the majority, however small, require some amount of covering. That covering should vary with the size of the seeds, and should be, at the least, as thick as the diameter of the seeds covered, and also sufficient to protect them from light and air. This is no easy matter sometimes, when some small seeds, such, for instance, as *Lobelia speciosa*, are sown in a light house or frame. The sun speedily dries the surface-covering, and unless water be applied through a very fine rose, the fresh water is apt to wash off the covering soil and expose the bare seeds to the air. A good deal of the risk would be prevented were all seeds placed in the dark until they vegetated—at least, all small seeds. Light is of no use, if not absolutely injurious, and seeds would often vegetate far sooner were they placed in darkness till they began to grow. Of course with the first signs of life they must be moved into the light, and receive waterings and other attention needed by plants. More seeds, however, are probably killed by sowing or covering too deeply than too thinly. It is no uncommon thing, especially among the inexperienced, to cover small seeds with $\frac{1}{4}$ in. or even $\frac{1}{2}$ in. of soil. Thousands so deeply covered perish. The germs either never come to life at all, or are quite unable to cope with such a huge mass or weight of covering earth. Only the larger seeds, such as those of Onions, Carrots, Turnips, &c., should be sown from $\frac{1}{4}$ in. to 1 in. in depth. Peas, Beans, and such seeds may go under ground from 2 in. to 3 in.; but smaller vegetable and flower seeds can hardly be covered too lightly, provided they are covered. Thick sowing is also to be reprobated. From the way in which valuable seeds are buddled together and thrown broadcast into heaps, one would think that they were the most worthless things in the world, and land the most costly. There cannot be a greater fault or extravagance than overcrowding seeds. It undermines the constitution of plants at starting, and it is long before they outgrow the evil effects of such treatment. Each seed should have room to grow without injuring its neighbour. Of course seeds of small plants may be sown more thickly than those of larger ones. But, relatively, they ought not really to be sown thicker. Each plant should have sufficient space to develop its cotyledons and one leaf before it is thinned or pricked out.

Temperature at which to Sow.

As to the soil in which to sow the seeds, the lighter and drier the seed-bed the better; these are the chief points, but a certain amount of heat is also necessary. Few seeds will vegetate in a lower temperature than 40° to 60° , and in a range of 20° —say from 40° to 60° —nearly all seeds will grow. Hence, after April till October, the seeds of all our hardier flowers, fruits, and vegetables, will vegetate freely in the open air; between October and April almost all seeds vegetate with more certainty and dispatch under the protection of glass. There is no better place for raising seeds than a slight hot-bed formed of a yard or so in depth of equal parts of manure and leaves; this will afford a gentle heat of from 45° to 50° or more, in which most seeds will grow freely; the surface should be covered with about 4 in. of light sandy loam, and the seeds sown should then be covered lightly, and shaded till they begin to vegetate. Similar soil is the best suited for the raising of seeds in the open air; but any ordinary garden soil in beds, borders, or kitchen garden, will do for the raising of seeds, if it be not too wet or too rich. Dry or burnt earth, ashes, charred refuse, and even sand, are useful for seed-raising, not only as affording a light, dry bed, but as providing a friable texture in the earth, which is favourable to the multiplication of young roots. Generally, as regards the proper temperature for the germination and early growth of seeds, much depends on the character of the plant, whether a native of temperate or tropical climes, and other characteristics. For instance, a Cabbage-seed will vegetate in a temperature of 40° ; a Cucumber requires 70° ; a Pea, again, will grow in any temperature a little above 32° , or the freezing point. Celery, though a native of our salt marshes and ditches, will hardly vegetate freely under a temperature of 60° or 65° . Possibly almost every seed has its best vegetating and seed-growing temperatures, could we but know them. In general terms, the majority of

hardy plants vegetate freely in a temperature ranging from 40° to 50° ; half-hardy and tender plants require from 55° to 65° or 70° . It may also be stated, as a principle, that many seeds seem to require a higher temperature to induce them to vegetate freely than is needed for the plants afterwards. The latter, however, require careful nursing, and one of the best investments in horticulture is a little extra care and skill in rearing young plants to the planting-out stage.—D. T. FISH.

HARDY FLOWERS IN LONDON GARDENS.

THE cold cutting winds which we have experienced during the past week have been unfavourable for the opening of May flowers, as well as for the endurance of those already expanded. Amongst the most effective subjects now to be found are Tulips, *Triteleias*, late *Narcissi*, and the Hyacinth-like spikes of *Scilla campanulata major*. In Mr. Parker's nursery *Fritillaria latifolia* is very showy, quantities of its large bell-shaped, dark-spotted blossoms being produced even on small plants. *F. Meleagris alba* is also just now at its best; and the white waxy-looking flowers of *Ranunculus alexandrinus* are being produced in profusion. Amongst Grape Hyacinths the best is *Muscari (Botryanthus) Szovitzianum*, the large clusters of dark blue blossoms of which are produced in great profusion where the soil is warm and well drained. *Pulmonaria azurea* is beginning to push up trusses of bright blue blossoms, which, contrasted with the double-flowered variety of *Ranunculus bulbosus* and of *Caltha palustris*, are very effective. The Cape Pondweed (*Aponogeton distachyon*) is now producing abundance of large Hawthorn-scented blossoms, and Primroses and *Polyanthuses* continue to be everywhere very attractive. *Primula cortusoides* is flowering freely in sheltered positions, as is also *P. erosa* and *P. denticulata*; *Orobanchium luteum*, too, is just beginning to throw up its yellowish clusters of Pea-shaped flowers, and Forget-me-Nots, Catchflies, and Pansies, are coming everywhere into full flower. The Common Honesty (*Lunaria biennis*) is also very showy in some of the London market gardens, and the *Doronicums* are covered with large yellow showy flowers. S.

***Mentha gibraltaria*.**—This is a desirable addition to lists of hardy plants suitable for carpet bedding. It is one of the easiest plants to propagate with which I have ever had anything to do, and it may be increased with wonderful rapidity. It is not every hardy plant that will bear rapid forcing for cuttings early in spring, but this Pennyroyal seems to revel in strong heat and moisture. It is hardly necessary to talk about taking cuttings, as its growth hugs the soil, and throws out roots at every joint; therefore all one has to do is to keep cutting off little plants and potting them, or planting them in shallow boxes, and in a very short time they in their turn will bear cutting up in like manner. The English species of Pennyroyal delights in somewhat damp and shady situations, and therefore in porous soils this will probably require to be liberally supplied with water, but now that softer quieter tints are becoming better appreciated, this plant, on account of its close, neat style of growth, will certainly be a great acquisition.—E. HOBDAV.

Common Honesty (*Lunaria biennis*) in spring.—This useful plant is not nearly so often met with as it ought to be. In shrubby borders and in half-shady situations it is very effective, and succeeds well in any light garden soil. In April and May it throws up numerous branching racemes of purplish rose-coloured blossoms, which are sweetly scented and very useful for cutting. I saw a large quantity of this plant growing in a market garden near London a short time ago, and the effect which it produced was very striking. The plants were growing between fruit trees, where they appeared to thrive remarkably well, and in autumn they yield a good supply of bright silvery pods, for the production of which they are expressly grown. These seed-vessels are extensively used at Christmas time in the manufacture of crosses, wreaths, and similar devices.—J. B.

New Hose-in-Hose Polyanthus.—I have just seen a truss of flowers of a golden yellow Hose-in-Hose Polyanthus, that promises to be an acquisition. It is a duplicate, as far as size and appearance are concerned, of Golden Gem, now so familiar to visitors at the South Kensington shows, but it greatly exceeds that kind in its deep rich orange-yellow tint. The white Hose-in-Hose is not quite so scarce as



Double Monkshood-leaved Crowfoot
(*Ranunculus aconitifolius* fl.-pl.)



Parnassia-leaved Crowfoot
(*Ranunculus parnassiaefolius*).



Caucasian Leopard's-bane
(*Doronicum caucasicum*).



Perennial Honesty (*Lunaria rediviva*).



Common Musk (*Mimulus moschatus*).



Veitch's Primrose (*Primula cortusoides amœna*).



Compact-growing Catchfly
(*Silene compacta*).



Double-flowered Asiatic Crowfoot
(*Ranunculus asiaticus* fl.-pl.).



Yellow-flowered Orobanch
(*O. luteus*).

SOME HARDY FLOWERS OF THE WEEK IN LONDON GARDENS.

I had imagined; for recently whilst in Hampshire I met with a large quantity of it, and was pleased to find that it makes a good spring bedding plant. In the same place I also found in quantity the Double Red Polyanthus named King Theodore, and the old-fashioned Jack-in-the-Green, both very interesting border flowers, but not to be commended as bedding plants.—A. D.

PLATE LXXII.

ROSES REYNOLDS HOLE AND FRANCOIS
MICHELON.

Drawn by H. NOEL HUMPHREYS.

THERE are incidents in life which make humility difficult:—when we succeed, after many failures, in smoking a cigar without feelings of nausea; when we first see some miserable verses or silly letters, which we have sent to the local newspaper, inserted by the kind editor to please our parents; when we bring down our first woodcock, or bring home our first brush; when we hit Ripper to square leg for five, or leave Brag on the wrong side of a nasty stile; or, when we see a magnificent Rose, exquisitely painted in THE GARDEN newspaper, or growing and glowing in the garden itself, and lo! it bears our name (not always, by the way, correctly spelt; for I have seen it written and printed "Reynold's Hole," as though Reynold were some brigand or badger; and, on one occasion, finding myself designated as "Reynard's Hole," I ventured to suggest to the writer of the tally that I was a Rose and not a Fox-glove). But who, returning, would not feel himself elated as he gazed, who would not stand in need of some restraint upon his vanity, and confess that he "required the cooper?" And he who asks the meaning of these latter words shall have it in a capital story. No long time since, in one of the midland counties, a young farmer, very much in love with himself, and never weary of assuring his companions what an admirable fellow he was, rode over to visit a neighbouring friend, to whom he enlarged for two or three hours upon his own various virtues and achievements. His host, though well known for his keen sense of humour and caustic power of satire, went through the ordeal with external assent and smile; but when the departing guest had his foot in the stirrup, he put the question, "Are you going home through the town?" (I must not give the name). "Yarse, he was going home by the town." "And did he know the cooper's shop?" "Yarse, the fellar with a lot of barrels." "Well, then," said his host, "if you'll take my advice, you'll stop at the cooper's on your way home, and ask him to put a couple of hoops round your waist, or you'll bust with self-importance."

Reynolds Hole is indeed a glorious Rose, and Mr. Noel Humphreys has most faithfully reproduced its brilliant colouring, or it would, perhaps, be more accurate to say, one of the most beautiful phases of its colouring, for it has many varying hues under differing influences of climate, bright scarlet and deep purple-crimson being the two prevailing tints. It was raised by one of the Seven Champions of Rose-growing Christendom (we shall see who the other six are when we fight the wars of the Roses in Saint James's Hall on the coming 4th of July), Mr. George Paul, of the Old Nurseries, Cheshunt, Herts, and was a scion from the Duke of Edinburgh, also one of the Cheshunt seedlings. The Rose was always remarkable for its rich and brilliant colour, and the raiser was always confident of its merits as a distinct acquisition, but the blooms first exhibited were not quite large enough to satisfy the rosarian, and the season of 1875 was adverse to its development. It seemed to many, my sorrowful self included, to be a failure, when in the summer of 1876, upon established plants, it surprised and charmed us all with its brilliant beauty, and took its place as an equal amid the grandest Roses of its class, Louis Van Houtte, Monsieur Boncenne, Pierre Notting, and Xavier Olibo.

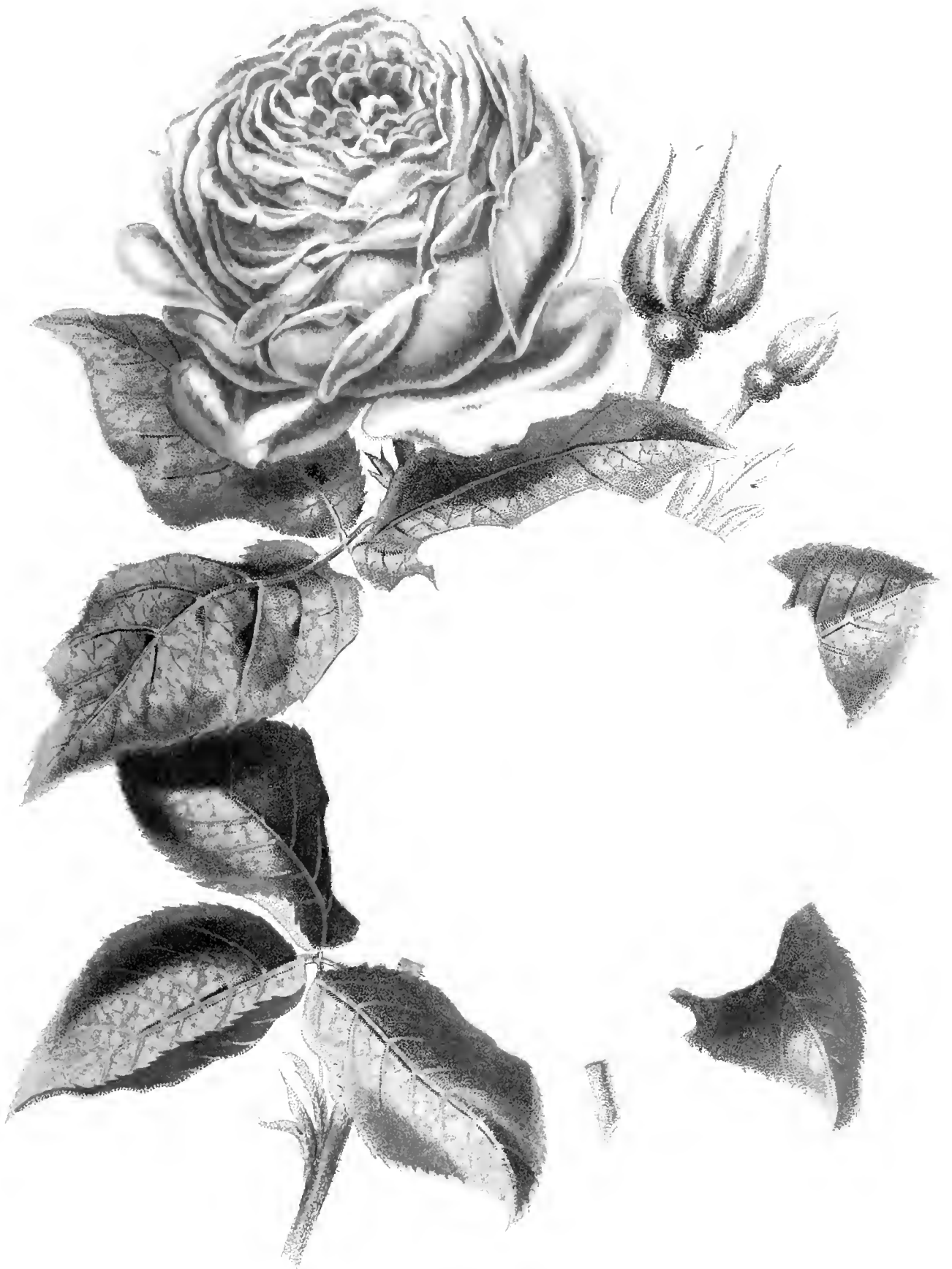
François Michelin, his associate in the accompanying plate, par nobile fratrum, was sent to England, in the autumn of 1870, by Mons. Levet, to whom we were previously indebted for Madame Therese Levet, and Paul Neron, and who at the same time enriched us with that magnificent gift, Etienne

Levet, I question whether any raiser of Roses ever sent out two such admirable novelties together, both of them to be included, in selecting this premier twelve; indeed, they are not to be surpassed, when shown in their perfection, for symmetry and for size. I need not describe François Michelin—the reader has it before his eyes.

I cannot forego this opportunity of congratulating rosarians upon the bright, pleasant prospects before us. In the first place the National Rose Society, so happily suggested by Mr. Dombrain, and so heartily promoted by his friends, will bring us into closer union and brotherhood, and will give us the Rose Show of the year, in the Hall of St. James. Moreover, this exhibition will probably surpass any of its predecessors, because, in the second place, the Rose trees themselves are in admirable condition, the wood being thoroughly ripened, and not at all injured by frost. If we can only escape those bitter severities of May, which sometimes haunt us like nightmares, and will hardly let us sleep in our beds, as we dream of Captain Christy starved and frost bitten, like Captain Burnaby in his "Ride to Kliya," we shall have a marvellous exposition of Roses. Whoever wins Messrs. Cranston and Mayo's fifty-guinea cup, will, I fear, "require the cooper"; but be this as it may, he will, I feel sure, include in his victorious collection François Michelin and REYNOLDS HOLE.

Hardy Primulas.—I have for the first time the somewhat shy-flowering *Primula Munroi* in bloom, but, compared with some of the more robust Alpine kinds, its beauty is not great. Two of the very handsomest of the early kinds are without doubt the intermedia and nivea varieties of *viscosa*, the rich maroon-purple of the one contrasting favourably with the pure white of the other. *P. villosa*, *integrifolia*, and *minima* are shy bloomers, but are exceedingly pretty, and they are kinds which should be in every collection. The leaves of *P. minima* resemble in a marked degree those of some miniature Palm, whilst the foliage of *P. integrifolia* is long and pointed and very distinct. *P. marginata* has very pleasing foliage, and is worthy of cultivation on that account alone.—A.

Auriculas at the Crystal Palace.—The powerful hold which old-fashioned hardy flowers still have upon the public taste was well manifested at the Crystal Palace on the 24th ult., when the people flocked in thickening crowds around the tables to inspect the Auriculas, Polyanthuses, and Pansies that covered them. It is one of the charms of these and kindred hardy plants that their beauties cannot be seen at a glance; they must be looked into and admired in detail, and not in the mass, as is the case when gorgeous and variously-coloured banks of Azaleas or Pelargoniums are concerned. It was truly pleasing to listen to the quaint criticisms to which the flowers were subjected by the genuine old florists present, many of whom had come long distances to share in the enjoyment provided for them at such a gathering. To the outside public green edge, grey edge, or self, paste, body and pip, are all terms absolutely unintelligible until some patient professional cultivator or florist explains their meaning, and then the instruction is received with avidity. Not only old florists, but amateurs of the true type of horticultural patron, gathered in considerable force to see the show, and the great interest there displayed bodes well for the future, not only as regards the Auricula, but also as respects many other kindred hardy plants. To those who have wealth and leisure the cultivation of the Auricula holds out special inducements, as it is a flower that peculiarly appreciates the care and attention that those having leisure and liking for it only care to give. The remarkable success that attended upon the Rev. Mr. Horner, although resident so far north as Ripon, and somewhat restricted in his means of cultivation, clearly shows that it is not the quantity grown nor the amount of labour at disposal, but rather the constant watchfulness and tender care of the true florist that secures success. So beautiful were the Auriculas that one turned to the Polyanthuses somewhat reluctantly, as these, with a few exceptions, were but sorry examples of what constitutes quality in that popular, old-fashioned flower. With the advent of the beautiful fancy and self forms has grown up an appreciating taste for them as exhibition flowers, and although it is an undoubted mistake to put these and the gold-faced kinds into competition, yet at the Palace, as at the Aquarium last year, the latter section found their charms paled by the more abundant beauties of the fancy varieties. It is specially satisfactory, however, to find that the interest created by the Palace show is already bearing good fruit, and no doubt next year the Polyanthus will be better represented.—A. D.



THE PLANT-LORE OF SHAKESPEARE.

(Continued from p. 338).

Garlick.

- (1) *Bottom*. And, most dear actors, eat no Onions nor Garlick, for we are to utter sweet breath.
A Midsummer Night's Dream, act iv., sc. 2.
- (2) *Lucio*. He would mouth with a beggar, though she smelt brown bread and Garlick.
Measure for Measure, act iii., sc. 2.
- (3) *Hotspur*. I had rather live
With cheese and Garlick in a windmill.
1st Henry IV., act iii., sc. 1.
- (4) *Menenius*. You that stood so much
Upon the voice of occupation, and
The breath of Garlick eaters.
Coriolanus, act iv., sc. 6.

There is something almost mysterious in the Garlick that it should be so thoroughly acceptable, almost indispensable, to many thousands, while to others it is so horribly offensive as to be unbearable. The Garlick of Egypt was one of the delicacies that the Israelites looked back to with foud regret, and we know from Herodotus that it was the daily food of the Egyptian labourer; yet, in later times, the Mahomedan legend recorded that "when Satan stepped out from the Garden of Eden after the fall of Man, Garlick sprang up from the spot where he placed his left foot, and Onions from that which his right foot touched, on which account perhaps Mohammed habitually fainted at the sight of either." It was the common food also of the Roman labourer, but Horace could only wonder at the "dura messorum ilia" that could digest the plant "cicutis allium nocentius." It was, and is the same with its medical virtues. According to some it was possessed of every virtue, so that it had the name of Poor Man's Treacle (the word treacle not having its present meaning, but being the Anglicised form of theriacle, or heal-all), while on the other hand Gerarde affirmed "it yieldeth to the body no nourishment at all; it ingendreth naughty and sharpe bloud." If we could only divest it of its evil smell, the wild Wood Garlick would rank among the most beautiful of our British plants. Its wide leaves are very similar to those of the Lily of the Valley, and its starry flowers are of the very purest white. But it defies picking, and where it grows it generally takes full possession, so that I have known several woods—especially on the Cotswold Hills—that are to be avoided when the plant is in flower. The woods are closely carpeted with them, and every step you take brings out their fœtid odour. There are many species grown in the gardens, some of which are even very sweet-smelling (as *A. odorum* and *fragrans*); but these are the exceptions, and even these have the Garlick scent in their leaves and roots. Of the rest many are very pretty and worth growing, but they are all more or less tainted with the evil habits of the family.

Gilliflowers (see Carnations).**Gooseberries.**

Falstaff. All the other gifts appertinent to man, as the malice of this age shapes them, are not worth a Gooseberry.
2nd Henry IV., act i., sc. 2.

The Gooseberry need not detain us, except to make a passing note that the name has nothing to do with the goose. Dr. Prior has satisfactorily shown that the word is a corruption of "Crossberry."

Gorse or Goss.

Ariel. Toothed Briars, sharp Furzes, pricking Goss and Thorns.
Tempest, act iv., sc. 1.

In speaking of the Furze (which see), I said that in Shakespeare's time the Furze and Gorse were probably distinguished, though now the two names are applied to the same plant. Mr. Beisley has, I think, proved this, when he says:—"The plant here called Pricking Goss is the *Genista anglica*, Petty Whin," called Goss in and previously to the time of Shakespeare. In the 15th Henry VI. (1436), Humfrey, Duke of Gloucester, had license to enclose 200 acres of land—"pasture, wode, Hethe, Vrises, and Gorste, Bruere, et Jampnorum." Rot: Parl: IV., 498 (Shakspeare's Garden, p. 12.) This does not prove that

Gorse = *Genista anglica*, but it proves that the "Gorst" was different from the "Vrise," and it may very likely have been the Petty Wbin. "Pricking Goss," however, may be only a generic term, like Bramble and Brier, for any wild prickly plant.

Gourd.

Pistol. For Gourd and Fullam holds.
Merry Wives, act i., sc. 3.

I merely mention this to point out that "Gourd," though probably originally derived from the fruit, is not the fruit here, but is an instrument of gambling.

Grapes (see Vines).**Grass.**

- (1) *Gonzalo*. How lush and green the Grass looks.
Tempest, act ii., sc. 1.
- (2) *Iris*. Here, on the Grass-plot, in this very place
To come and sport.
Ibid., act iv., sc. 1.
- (3) *Ceres*. Why hath thy Queen
Summoned me hither to this short-grassed green?—*Ibid.*
- (4) *Lysander*. When Phœbe doth behold
Her silvery visage in the watery glass
Decking with liquid pearl the bladed Grass.
A Midsummer Night's Dream, act i., sc. 1.
- (5) *King*. Say to her, we have measured many miles
To tread a measure with her on this Grass.
Boyet. They say that they have measured many a mile
To tread a measure with you on the Grass.
Love's Labour's Lost, act v., sc. 2.
- (6) *Clown*. I am no great Nebuchadnezzar, sir, I have not much skill
in Grass.
All's Well That Ends Well, act iv., sc. 5.
- (7) *Lucio*. If thou art changed to-night, 'tis to an ass.
Dromio of Syracuse. 'Tis true; she rides me, and I long for Grass.
Comedy of Errors, act ii., sc. 2.
- (8) *Bolingbroke*. Here we march
Upon the Grassy carpet of the plain.
Richard II., act iii., sc. 3.
- (9) *King Richard*. And bedew
Her pasture's Grass with faithful English blood.
Ibid.
- (10) *Ely*. Grew like summer Grass, fastest by night,
Unseen, yet creseive in its faculty.
Henry V., act i., sc. 1.
- (11) *King Henry*. Mowing like Grass
Your fresh-fair virgins and your flowering infants.
Ibid., act iii., sc. 3.
- (12) *Grandpre*. And in their pale dull mouths the gimmal bit
Lies foul with chew'd Grass, still and motionless.
Ibid., act iv., sc. 2.
- (13) *Suffolk*. Though standing naked on a mountain top
Where biting cold would never let Grass grow.
2nd Henry VI., act iii., sc. 2.
- (14) *Cade*. All the realm shall be in common, and in Cheapside shall my
palfrey go to Grass.
Ibid., act iv., sc. 2.
- (15) *Cade*. Wherefore on a brick wall have I climbed into this garden,
to see if I can eat Grass or pick a Sallet another while, which is
not amiss to cool a man's stomach this hot weather.
Ibid., act iv., sc. 10.
- (16) *Cade*. If I do not leave you all as dead as a door-nail, I pray God
I may never eat Grass more.
Ibid.
- (17) *1st Thief*. We cannot live on Grass, on berries, water,
As beasts and birds and fishes.
Timon of Athens, act iv., sc. 3.
- (18) *Saturninus*. These tidings nip me, and I hang the head
As flowers with frost or Grass beat down with storm.
Titus Andronicus, act iv., sc. 4.
- (19) *Hamlet*. Ay, sir, but while the Grass grows—the proverb is some-
thing musty.
Hamlet, act iii., sc. 2.
- (20) *Ophelia*. He is dead and gone, lady,
He is dead and gone,
At his head a Grass-green turf,
At his heels a stone.
Ibid., act iv., sc. 5.

In the whole range of botanical studies the accurate study of the Grasses is, perhaps, the most difficult as it is the most extensive, for Grasses are said to "constitute, perhaps, a twelfth part of the described species of flowering plants, and at least nine-tenths of the number of individuals comprising the vegetation of the world" (Lindley), so that a full study of the Grasses may almost be said to be the work of a lifetime. But Shakespeare was certainly no such student of Grasses: in all these passages Grass is only mentioned in a generic manner, without any reference to any particular Grass. The passages in which hay is mentioned, I have not thought necessary to quote.

Harebell.

Arctagrus.

Thou shalt not lack
The flower that like thy face, pale Primrose, nor
The azure Harebell, like thy veins.
Cymbeline, act iv., sc. 2. (See Eglantine).

The Harebell of Shakespeare is undoubtedly the Wild Hyacinth (*Scilla nutans*), though we must bear in mind that the name is applied differently in various parts of the island; thus the Harebell of Scotch writers is the Campanula, and the Bluebell, so celebrated in Scottish song, is the wild Hyacinth or Scilla; while in England the same names are used conversely, the Campanula being the Bluebell and the Wild Hyacinth the Harebell" (Poets' Pleasance)—but this will only apply in poetry; in ordinary language, at least in the south of England, the wild Hyacinth is the Bluebell, and is the plant referred to by Shakespeare as the Harebell. It is one of the chief ornaments of our woods, growing in profusion wherever it establishes itself, and being found of various colours—pink, white, and blue. As a garden flower it may well be introduced into shrubberies, but as a border plant it cannot compete with its rival relation, the Hyacinthus orientalis, which is the parent of all the fine double and many-coloured Hyacinths in which the florists have delighted for the last two centuries.

Harlocks.

Cornelio.

Crowned with rank Fumiter and farrow weeds,
With Harlocks, Hemlock, Nettles, Cuckoo-flowers.
King Lear, act iv., sc. 4. (See Cuckoo-flowers).

I cannot do better than follow Dr. Prior on this word:—"Harlock, as usually printed in *King Lear* and in Drayton, ecl. 4—

The Honeysuckle, the Harlocke,
The Lily and the Lady-smocke,

is a word that does not occur in the Herbals, and which the commentators have supposed to be a misprint for Charlock. There can be little doubt that Harlock is the correct reading, and that the plant meant is the one now called Burdock."

Hawthorns.

(1) *Rosalind.* There's a man hangs odes upon Hawthorns and elegies on Brambles.

As You Like It, act iii., sc. 2.

(2) *Quince.* This green plot shall be our stage, this Hawthorn brake our tiring house.

Midsommer Night's Dream, act iii., sc. 1.

(3) *Helena.* Your tongue's sweet air,
More tunable than lark to shepherd's ear,
When Wheat is green, when Hawthorn-buds appear.

Ibid., act i., sc. 1.

(4) *Falstaff.* I cannot cog and say thou art this and that, like a many of these hisping Hawthorn-buds.

Merry Wives, act iii., sc. 3.

(5) *K. Henry.* Gives not the Hawthorn bush a sweeter shade
To shepherds, looking on their silly sheep,
Than doth a rich embroidered canopy
To kings that fear their subjects' treachery?
O yes, it doth, a thousandfold it doth.

3rd Henry VI., act ii., sc. 5.

(6) *Edgar.* Through the sharp Hawthorn blows the cold wind (*bis*).

King Lear, act iii., sc. 4.

Under its many names of Albespine, Whitethorn, Haythorn or Hawthorn, May, and Quickset, this tree has ever been a favourite with all lovers of the country.

Amongst the many buds proclaiming May,
Decking the fields in holiday array,
Striving who shall surpass in braverie,
Marke the faire blooming of the Hawthorn tree,
Who, finely clothed in a robe of white,
Fills full the wanton eye with May's delight.

Such is Chaucer's advice. He clearly loved the tree for its beauty, and in picturesque beauty the Hawthorn yields to none, when it can be seen in some sheltered valley growing with others of its kind, and allowed to grow unpruned, for then in the early summer it is literally a sheet of white, yet beautifully relieved by the tender green of the young leaves, and by the bright crimson of the anthers, and loaded with a scent that is most delicate and refreshing. But not only for its beauty is the Hawthorn a favourite tree, but also for its many pleasant associations—it is essentially the May tree, the tree that tells that winter is really past, and that summer has fairly begun. Hear Spenser—

Thilke same season, when all is yelade
With pleasaunce; the ground with Grasse, the woods
With greene leaves, the bushes with blooming buds,
Youngthe's folke now flocken in everywhere
To gather May-baskets and smelling Breere;
And home they hasten the postes to dight
And all the kirk-pillours eare day-light
With Hawthorne-buds, and sweet Eglantine,
And girondes of Roses, and Soppes-in-wine.

Shepherd's Calendar—May.

Yet in spite of its pretty name, and in spite of the poets, the Hawthorn now seldom flowers in May, and I should suppose it is never in flower on May Day, except perhaps in Devonshire and Cornwall; and it is very doubtful if it ever were so found, though some fancy that the times of flowering of several of our flowers are changed, and in some instances largely changed. But "it was an old custom in Suffolk in most of the farm-houses that any servant who could bring in a branch of Hawthorn in full blossom on the 1st of May was entitled to a dish of cream for breakfast. This custom is now disused, not so much from the reluctance of the masters to give the reward, as from the inability of the servants to find the Whitethorn in flower" (Brand's "Antiquities.") Even those who might not see the beauty of an old Thorn tree, have found its uses as one of the very few trees that will grow thick in the most exposed places, and so give pleasant shade and shelter in places where otherwise but little shade and shelter could be found.

Every shepherd tells his tale
Under the Hawthorn in the dale.—*Milton.*

And "at Heskett, in Cumberland, yearly on S. Barnabas' Day, by the highway side under a Thorn tree is kept the court for the whole forest of Englewood."—"History of Westmoreland.")

The Thorn may well be admitted as a garden shrub either in its ordinary state, or in its beautiful double white, red, and pink varieties, and those who like to grow curious trees should not omit the Glastonbury Thorn, which flowers at the ordinary time, and bears fruit, but also buds and flowers again in winter, showing at the same time the new flowers and the older fruit.

Nor must we omit to mention that the Whitethorn is one of the trees that claims to have been used for the sacred Crown of Thorns. It is most improbable that it was so, in fact, almost certain that it was not; but it was a mediæval belief, as Sir John Mandeville witnesses:—"Then was our Lord yled into a gardyn, and there the Jewes scorned hym, and maden hym a crowne of the branches of the Albespyne, that is Whitethorn, that grew in the same gardyn, and setten yt upon hys heved. And therefore hath the Whitethorn many virtues. For he that beareth a branch on hym thereof, no thundre, ne no maner of tempest may dere hym, ne in the howse that it is ynne may non evil ghost enter."

And we may finish the Hawthorn with a short account of its name, which is interesting:—"Haw," or "hay," is the same word as "hedge" (sepes, id est, *haies*—John de Garlande), and so shows the great antiquity of this plant as used for English hedges. In the north, "haws" are still called "haigs;" but whether Hawthorn was first applied to the fruit or the hedge, whether the hedge was so called because it was made of the Thorn tree that bears the haws, or whether the fruit was so

named because it was borne on the hedge tree, is a point on which etymologists differ.

Hazel.

- 1 *Mercurio*. Her [Queen Mab's] chariot is an empty Hazel nut,
Made by the joiner squirrel or old grub,
Time out of mind the fairies' coachmakers.
Romeo and Juliet, act i., sc. 4.
- (2) *Petruchio*. Kate, like the Hazel twig,
So straight and slender, and as brown in hue
As Hazel-nuts and sweeter than the kernels.
Taming of Shrew, act ii., se. 1.
- (3) *Caliban*. I'll bring thee to clustering Fillberds.
Tempest, act ii., se. 2.
- (4) *Touchstone*. Sweetest Nut hath sourest rind,
Such a Nut is Rosalind.
As You Like It, act iii., se. 2.
- (5) *Celia*. For his verity in love I do think him as concave as a covered
goblet or a worm-eaten Nut.
Ibid., act iii., se. 4.
- (6) *Lafeu*. Believe me, my lord, there can be no kernel in this light Nut.
All's Well That Ends Well, act ii., se. 5.
- (7) *Mercurio*. Thou wilt quarrel with a man for cracking Nuts, having
no other reason but because thou hast Hazel eyes.
Romeo and Juliet, act iii., se. 1.
- (8) *Thersites*. Hector shall have a great catch if he knock out either of
your brains, 'a' were as good crack a fusty Nut with no kernel.
Troilus and Cressida, act ii., se. 1.
- (9) *Gonzalo*. I'll warrant him from drowning, though the ship were no
stronger than a Nut-shell.
Tempest, act i., se. 1.
- (10) *Titania*. I have a venturous fairy that shall
Seek the squirrel's hoard and fetch thee new Nuts.
Midsummer Night's Dream, act iv., se. 1.
- (11) *Hamlet*. O God! I could be bounded in a Nut-shell and count myself
self a king of infinite space, were it not that I have had dreams.
Hamlet, act ii., se. 2.

Dr. Prior has decided that "'Filbert' is a barbarous compound of *phylon* or *feuille*, a leaf, and *beard*, to denote its distinguishing peculiarity, the leafy involucre projecting beyond the nut." But in the times before Shakespeare the name was more poetically said to be derived from the nymph Phyllis. Nux Phyllidos is its name in the old vocabularies, and Gower (*Confessio amantis*) tells us why:—

Phyllis in the same throwe
Was shape into a Nutte-tree,
That alle men it might see;
And after Phyllis philliberde,
This tre was cleped in the yerde—(Quoted by Wright).

The Nut, the Filbert, and the Cobnut are all botanically the same, and the two last were cultivated in England long before Shakespeare's time.

There is a peculiarity in the growth of the Nut that is worth the notice of the botanical student. The male blossoms, or catkins (also anciently called "agglottes or blowinges") are mostly produced at the ends of the year's shoots, while the pretty little crimson female blossoms are produced close to the branch; they are completely sessile or unstalked. Now in most fruit trees, when a flower is fertilized, the fruit is produced exactly in the same place, with respect to the main tree, that the flower occupied; a Peach or Apricot, for instance, rests upon the branch which bore the flower. But in the Nut a different arrangement prevails. As soon as the flower is fertilized, it starts away from the parent branch; a fresh branch is produced bearing leaves and the Nut or Nuts at the end, so that the Nut is produced several inches away from the spot on which the flower originally was. I know of no other tree that produces its fruit in this way, nor do I know what special benefit to the plant arises from this arrangement.

Much folk-lore has gathered round the Hazel tree and the Nuts. The cracking of Nuts, with much fortune-telling connected therewith, was the favourite amusement on All-Hallows Eve (Oct. 31), so that the Eve was called Nutcrack Night. I believe the custom still exists; it certainly has not been very long abolished, for the Vicar of Wakefield and his neighbours "religiously cracked Nuts on All-Hallows Eve." And in many places "an ancient custom prevailed of going a Nutting

on Holy Rood Day (Sept. 14), which it was esteemed quite unlucky to omit" (Forster).

A greater mystery connected with the Hazel is the divining rod, for the discovery of water and metals. This has always by preference been a forked Hazel-rod, though sometimes other rods are substituted. The belief in its powers dates from a very early period, and is by no means extinct. I believe the divining-rod is still used in Cornwall, and firmly believed in; nor has this belief been confined to the undeducated. Even Linnæus confessed himself to be half a convert to it, and learned treatises have been written, accepting the facts, and accounting for them by electricity or some other subtle natural agency. Most of us, however, will rather agree with Evelyn's cautious verdict, that the virtues attributed to the forked-stick "made out so solemnly by the attestation of magistrates, and divers other learned and credible persons, who have critically examined matters of fact, is certainly next to a miracle, and requires a strong faith." H. N. ELLACOMBE.

(To be continued).

THE KITCHEN GARDEN.

TURNIP CULTURE.

TURNIPS may be had in good condition nearly ten months in the year by sowing a little seed at various times from the first week in March to the last day in July. A light gravelly soil, well broken up, is that which is most favourable to the production of good Turnips, but they will succeed in all sorts of soils if properly prepared. Gardens that are situated somewhat low and moist, with a moderately rich, well-cultivated soil, will produce early Turnips of the best quality, though such gardens are unsuitable for the generality of spring crops. The first crop should be sown about the last week in March, in an open situation, where the ground is light. When sown two or three weeks after midsummer, and the plant becomes established, there is no difficulty in securing a crop on tolerably well-managed land. Others to succeed those sown the previous month should be put in about the end of April. This crop will be ready for use by the end of June; those sown at the end of March, if they escape the flea, will be ready for use by the first week in June. Another sowing should be made early in June, and a sowing for the main crop about the first week in July. In all cases locality must decide the time to sow the last crop. As a rule, large Turnips are not required; therefore they should be sown just soon enough to insure roots about the size of one's fist. It is a good plan to make two sowings at an interval of a fortnight from each other. Turnips are in all cases best in drills about 1 in. deep and 14 in. apart. Late crops should be sown rather wider apart than earlier ones, in order that light and air may circulate freely among the foliage and about the roots, otherwise the leaves get watery and incapable of resisting severe weather. As soon as the plants have made leaves 1 in. in width, the hoe must be at work amongst them, cutting up weeds and stirring up the ground. They should be thinned to about 12 in. from each other in the rows. In dry weather give them a good soaking or two of water, and hoe between the rows at least once a week. I ought to have stated that it is not essential that the ground should be prepared just previous to sowing the seed, it being an advantage to have it prepared some time beforehand, when it is not required for other purposes. In all gardens of limited dimensions every inch of ground is an object, and the moment one crop is gathered the ground should be turned up and planted with another. Manure freely and dig deeply, and the soil will be capable of bringing to perfection two, three, or even four crops in one season. For early sowings of Turnips, the best are Early American Stone Strapleaf, which is very early and good; Early White Dutch, a sort that becomes quickly fit for use; Early White Stone; and Early Snowball. For the main crop there is nothing better than Red Globe; it is an excellent variety, and it has the good property of remaining a long time fit for use. For late winter use Orange Jelly and Chirk Castle are fine hardy sorts; the flesh of the latter is beautifully white, though the outside is nearly black, and the flavour is good; but the flesh of the former is yellow, and,

therefore, to some objectionable. The greatest enemy to the Turnip crop is the fly, which is most to be feared in fine, sunny seasons; heavy rains and cold springs destroy them. One remedy is to dust the ground all over with quick-lime as soon as the plants appear above the surface; this, in most cases, is effectual. Some apply gas-lime three or four days after sowing the seed; sifted wood-ashes, put on as soon as the plants show their seed-leaves, have also proved an effectual remedy.

R.

POTATO PLANTING.

A NUMBER of years ago, a German cultivator caused some sensation by stating that the productive power of the Potato could be marvellously increased by a system of culture which he had discovered. His plan, if we remember rightly, was to plant whole sets of the largest size, and those with the greatest number of eyes, and he planted them some 6 in. or 8 in. deep, with the eyes downwards, as far as practicable, and allowed each plant 12 square ft. or 16 square ft. of space to itself; or, in other words, he placed the sets some 4 ft. asunder each way. Placing the eyes downwards caused the shoots to make a détour, as it were, and to spread out on the surface of the ground; advantage was taken of this to make the shoots extend as much as possible on all sides, mounding up being accomplished by placing a hillock or earth in the centre of the plant and over the base of each stem for some considerable distance, pressing them all downwards and outwards at the same time, so as to admit light and air, and get as great a breadth of haulm as possible. We forget now what was the weight of the produce of each root; but the crop was said to be enormous, and we can quite believe it. Such a practice is not to be recommended in general culture; but it is very suggestive nevertheless, and shows the advantage and necessity of giving the tops of the Potato plant room, and, in a negative sense, the evils of thick planting. One good, stout stem is worth half-a-dozen small weedy ones, for the first will produce an abundance of large, sound tubers, and the second only small ones—frequently so small as to be unfit for use. Many plant much too thickly, thus encroaching upon their store for present use and injuring the future crop. We have frequently seen cottagers planting such kinds as Paterson's Victoria and Regents in rows 18 in. or less apart, and the sets about 6 in., which is allowing such strong-growing varieties just half the room which they require; but it is exceedingly difficult to get owners of allotments to believe this without actual experiment. Naturally anxious to make the most of their small piece of ground, they have no faith in the economy of wide planting. A few years ago when the disease was so bad, several cottagers' crops were in many cases a mass of rotteness, and far worse than the field crops, a circumstance which could only be attributed to thick planting, for during the wet and sultry weather the tops of all kinds grew unusually tall and thick, and covered the ground so densely that the soil never had the least chance of becoming dry or receiving a ray of sunshine; the haulm acted like a thick mulching, which invariably aggravates the disease. Like the Pea, the Potato should have room in proportion to its growth. The dwarf Kidneys and others which produce tops 12 in. or 18 in. high, should be allowed from 2 ft. to 2½ ft. between the rows, and from 9 in. to 12 in. between the sets, if whole sets be used and none of the eyes be picked out; but if only one shoot be left to a set, they may be planted a little closer. Tall sorts, like the Regents, Paterson's Victoria, and Red-skinned Flourball, require 3 ft. or 3½ ft. between the rows, and 18 in. between the sets. This is the space we give them, and they always cover the ground completely, and overlap each other considerably. Under high culture and in good soil, 6 ft. between the rows would not be too much for some strong-growing kinds; though whether it would be profitable to afford the tops as much space as they would actually occupy when they spread out over the ground, we shall not venture to say. Of one thing, however, there can be no doubt, and that is, that in wet seasons, when disease is apt to occur, it is better if the sun's rays can strike the ground between the rows. As regards the time to plant, a good deal depends upon circumstances, and there is some difference of opinion on the subject. Thus the late Mr. Andrew Knight, who is frequently quoted as an authority on the subject, says, if planting can be done by the end of February, so much the better; but, at all events, it should be finished by the 1st of March. Where Mr. Knight carried out his experiments in Potato culture, this might be true; but such early planting is not advisable in many parts of England and Scotland. In the south, and in warm, light soils, February is not too early, provided the ground is in a workable condition when the crop is put in; but in the northern and in many parts of the midland counties early main crops are not planted till April, and the late crop is often not

got in before the middle of May; and late planting is found to be the best practice. On one or two occasions we put in part of our main crop in February and March, and the remainder in April, towards the end of the month; and the later-planted crop was found to be so much superior, that we have always adhered to the practice since. We were strangers to the locality at the time, and believed in early planting; but the old farmers of the neighbourhood predicted that we should alter our practice, and they were right: the worst crop of Potatoes we ever had was planted in February. Some people are nervous if they cannot get their crops into the ground at a stated time; but it is far better to wait a fortnight, or even a month, than to attempt planting when the ground is wet and unworkable. Under such circumstances, little or no time is lost if the seed tubers be spread out thinly in a loft or in a shed where they can sprout; and if they be carefully planted, so as not to rot the sprouts off, the tops are soon above the ground, and progress rapidly. The old practice of spreading the manure in the row and planting the sets upon it is still commonly practised. In planting field crops, hardly any other plan can be conveniently adopted; but in garden culture, if the manure be given at planting time, it should be dug into the ground in the usual way, and the Potatoes set at the same time, as if no manure were there.

FIELD.

A GARDEN HORROR.

THIS is what one of our correspondents saw some time ago in the mirror globe in the new Canon Hill Park at Birmingham. Previous to that he was not without some consciousness



of an ornamental exterior; he therefore naturally protests against the employment of such barbarisms in gardens. We have before now said as much as we could against the adoption of the dreadful mirror globe of the French gardens; we however only referred to their distant effect, bad enough in the landscape to keep them out of tea-gardens of the meanest type. Canon Hill Park is well laid out, and does not require any aids of this kind.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Snow's Winter White Broccoli.—Few vegetables in January or February are so acceptable as this Broccoli when it can be obtained true to name. A little seed sown now in a good, rich bed of soil, pricking the plants out when large enough, and transplanting them to their final quarters early in June in good, firm land, will, if all go well, give a supply of snow-white heads at a time when good vegetables are scarce.—C.

Pinching Tomato Plants.—When planted in very rich soil, Tomatoes often produce much wood and little fruit. The best crop of Tomatoes I ever saw was furnished by main stems as free from side growth as a walking stick. All growths, except the leaves and flowers attached to the principal stem, had been pinched off as they appeared.—J. M.

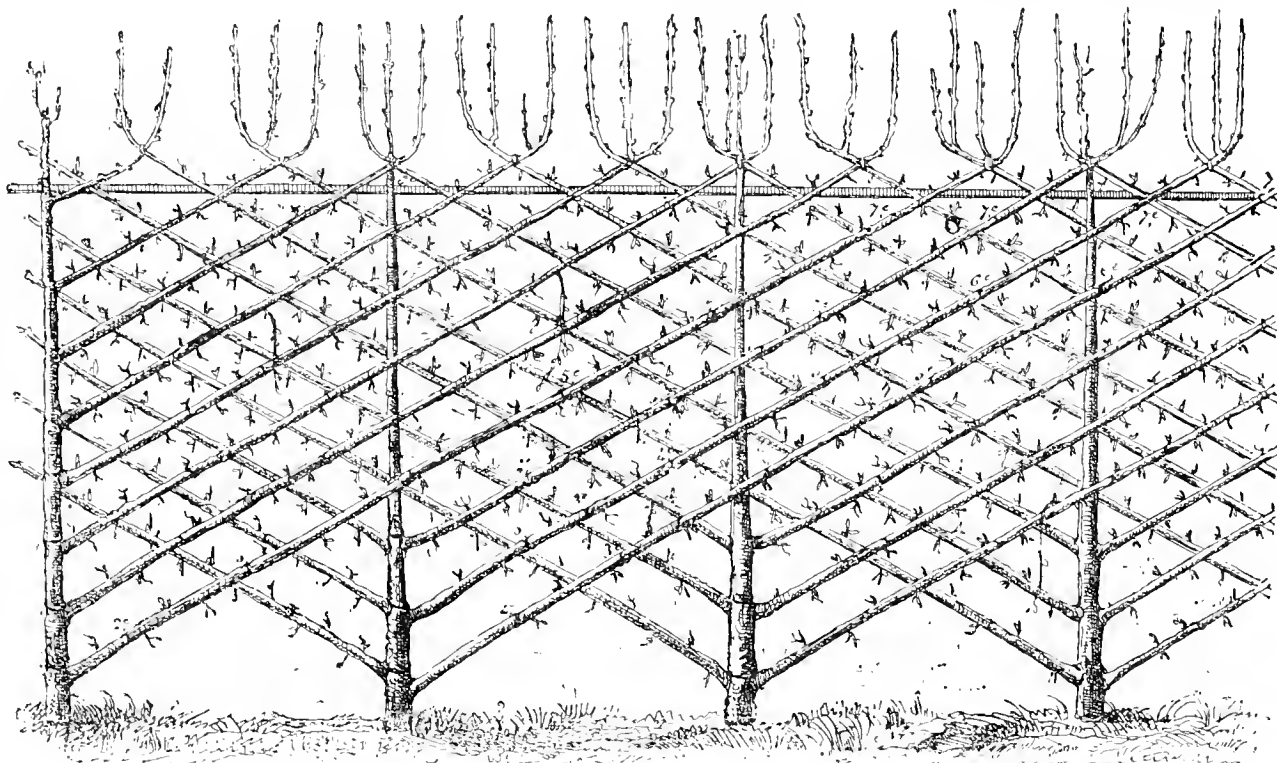
Osborn's Forcing and Wilmot's Forcing French Beans.—I have given both of these Beans (said to be excellent forcers) a fair trial this spring; they were sown on the same day and grown on ever since in the same house; the first dish was gathered from Osborn's last week, while Wilmot's is scarcely in flower yet, and will be about three weeks later in fruiting. The pods on Osborn's are not very long, but they are produced in great numbers, and the plants are dwarf and compact in habit of growth. On the other hand, Wilmot's is inclined to run into long straggling stems, and altogether I consider it much inferior to Osborn's for culture under glass.—A NORTHERN GARDENER.

THE FRUIT GARDEN.

SOME FINE CROSSED ESPALIERS.

WE have recently noticed very fine examples of crossed espaliers in France, which may perhaps be worth illustrating. As will be seen in this case supports are dispensed with, except that of the trees themselves and a long stake or string of wire along the top as shown in the cut. The trees are plauted pretty close, and the branches so crossed that they support each other and the fruit steadily. As will be seen there are only three stages of branches on each tree, except at the end of the line where they are required to complete it. It will be observed that having obtained the three tiers of branches, the central stem is retained as a support for the intercrossing branches. It requires eight years to form a series of fine espaliers like these in the Government School at Saulsaie. The shoots at the top are to encourage the sap to flow

fit for the purpose. A ridge of light soil, 3 in. deep, should be laid along between the rows; over this the offsets should be laid, and the runners beyond pinched off. Place a stone a few ounces in weight behind the young plant to keep it in its place, and when it pushes, pinch again. In this way a young plant is much sooner formed than by waiting till the first offsets have formed several leaves, by which time others have formed beyond them, thus robbing the earliest of their vigour. After layering they should be watered frequently, if the weather be dry, and in three or four weeks the plants will be rooted and ready for potting. A few days before potting, however, the plants should be severed from the parent crown, which may cause them to flag a little, but they will soon recover. The best soil for the Strawberry is a light fibry loam; but if the loam be heavy, it must be reduced to the proper texture by the admixture of rotten leaf-mould and sand, and in any case a quantity of Standen's Manure, at the rate of half a teaspoonful to a 6-in. pot, should be mixed with the compost. For weaker kinds, like the Black Prince, $4\frac{1}{2}$ -in. or 5-in.



Crossed Espaliers at Saulsaie.

freely through each branch, and also to prevent very strong growth on the said branches. The form was adopted to meet the inconveniences of a very windy and exposed situation. Having seen the trees, we can vouch for their perfection of form and fertility.

STRAWBERRY FORCING.

As regards preparing the plants for forcing, it is necessary in the first place to propagate such sorts only as are found to ripen early out-of-doors, and to bear freely and constantly. This has been my guide for many years, and I have never been disappointed. All varieties do not bear alike in different localities; but a little inquiry will soon elicit the necessary information, and this is the course which I should recommend intending cultivators to pursue. It may, however, be mentioned that the Black Prince variety and Vicomtesse Héricart de Thury have hitherto proved to be free bearers and good forcers in almost all parts of the country. Runners of the earliest outdoor plants should be layered as soon as they are

pots will be large enough, and 6-in. should not be exceeded for the strongest. Nothing whatever is gained by using large pots, and both time and space are lost by them. The pots should be safely drained with from $\frac{3}{4}$ in. to 1 in. of clean crocks, not more, and in potting the soil should be made pretty firm under plants, and pressed moderately firm round their roots, leaving about half an inch for watering; it is assumed, of course, that the plants are lifted from the bed with good balls of earth, and carefully handled in potting. After they are potted the plants should be placed on ashes on a level and sheltered piece of ground, and in a warm and light situation, and at first set as closely together as the pots will stand. Then they should be well watered, and from this time till they cease growing, about the end of September, water must be supplied liberally, and weak liquid manure frequently. The secret of Strawberry forcing depends upon the culture of the plants the summer previous. An early start and liberal treatment afterwards give fine and ample foliage and strong crowns; and these once secured, if a good crop be not the result, then in nineteen cases out of twenty, the failure is owing to mismanagement. By October the plants will have ceased grow-

ing actively, and at that season water should not be given indiscriminately, but only when the plants are dry, and always in the morning—at least when frosts are expected; it is not advisable to water a plant when it is likely to be frozen. Before November the plants should be stored in dry, cool pits or houses; failing these, they may be stacked in ridges, laying the pots on their sides with the crowns outwards, and covering each row with ashes as the work proceeds. From the store pits they may be introduced into heat as wanted, in fifties or hundreds, as the case may be. It is always best to put in plenty of plants, as the fruit can easily be retarded for nearly a month after it is set if needful; and if not, frequent dishes of fruit are always acceptable. In forcing, temperature is the most important matter. A high day temperature is not injurious, if the thermometer be allowed to drop to or below 40° at night up till the setting period; but after that, if time be an object, they will stand a temperature of 90° on fine sunny days, with free ventilation; but it is always advisable to drop low at night, consistently with an early rise in the morning. In fine days the plants may be syringed once a day overhead, but not oftener, and at all times they must be well watered at the roots; but saucers to hold water should not be used. When the fruit is ripe or nearly so, it is improved in flavour by removing the plants to an airy house, where the temperature is not lower than 50°, for it requires heat, together with light and air, to give the berries a good flavour.

CHEF.

Covering Early Vinery Borders.—Does Mr. Baines realise the force of his advice on this subject (see p. 311)? I am able to inform him that a Vine border covered early in the autumn with a layer of non-conducting materials “sufficient to ward off rains and frost” merely, and not to ferment—as he recommends for outside borders of early Vineries—will decline in temperature to 50° before Christmas, 9 in. or 12 in. below the surface, and lower in severe weather. Consequently, Vines started in November or December will have their roots in a temperature of 45° or 50°, when they are supposed to be ripening their fruit, and enjoying a temperature (inside) of from 70° to 85°. If this be the treatment Mr. Baines recommends for Vines, it is very different from what he recommends for plants in his calendarial and other writings, and I should be glad to know why he makes a distinction. The temperature of an outside Vine border is about 55° or 60° “early in the autumn,” under ordinary circumstances, but a layer of non-conducting materials cannot sustain it at that figure for any length of time, for, unless the material is thick enough to ferment, the soil still continues to part with its heat, only slower. I cannot be accused, I think, of advocating high temperatures, but I do think the temperature of the border should bear some reasonable proportion to the temperature of the Vinery at all stages. I have known good Grape growers, such as those to whom Mr. Baines refers, who professed to use “non-conducting materials” only for their borders, and not hot livings, but a thermometer inserted in their coverings of leaves revealed a different state of things, and showed that the materials were not only “non-conducting” but actually “fermenting,” and thus, really, they were practising one system and advocating another.—J. SIMPSON, *Wortley*.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Liquid Manure for Vines.—We are often recommended not to give manure water to Vines until the fruit is swelling. I always apply it freely from the time when the young shoots are 1 in. or 2 in. long until the fruit is colouring, and I find it do far more good in strengthening the shoots and produce before the bunches are in flower than at any subsequent period.—A NORTHERN GARDENER.

Grape Mildew.—A French authority, M. Chatot, recommends common salt as an antidote for Mildew on Vines. By sprinkling a handful of salt around the base of each Vine, the effect, he says, was marvellous; and Vines hitherto covered with this fungus, grew luxuriantly, and had an abundance of Grapes entirely free from Oidium.

Peaches and Nectarines for Succession.—When I came here I found no Peaches fit for gathering on the 7th of July; the Peaches consisted of Royal George and the Nectarines of the Elruge, and when they did ripen I had twice or thrice as many fruits as I wanted. I therefore at once determined to take up each end tree and plant Early Rivers and Early Beatrice Peaches; the latter I shall gather in ten days, and the former shortly afterwards—thus with one house I shall furnish a good supply of fruit shortly afterwards—thus with one house I shall obtain, and still have an apple later in the season as before.—R. GILBERT, *Burghley*.

Vine Borders.—In Mr. Baines's article on this subject (p. 311, line 16) for “outside” read “within.”

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Cinerarias and Primulas.—A little more Cineraria seed should now be sown to succeed the earliest batch; also Primula seed to furnish plants in bloom for the winter. Amateurs who have not had much experience in raising Primulas from seed, frequently find a difficulty with them, as the seeds are very tender and must only be very slightly covered. A good method is, after filling the seed-pans with finely-sifted soil, consisting of three-fourths loam and one of leaf-mould mixed with a little sand, and making the surface firm, to sow the seeds evenly, not using any covering of soil, but laying over the top a little chopped Sphagnum; a sheet of glass placed on the top will keep the soil sufficiently moist to cause the seed to vegetate. As soon as growth has commenced the Sphagnum must be removed, otherwise the young plants will become drawn; gradually expose them to the light.

Perennials and Biennials should now be sown; if deferred to a later period, the plants rarely get strong enough to furnish a vigorous bloom. The hardiest examples of Wallflowers, Sweet Williams, Campanulas, Dianthus, Aquilegias, Delphiniums, Foxgloves, Hollyhocks, Mimulus, Pentstemons, and Biennial Stocks may be sown in the open ground—the rest in pans placed in a cold frame. The advantage of getting them sown in good time is that it permits of their being transplanted into nursery-beds sufficiently early in the summer to attain a size and strength that will enable them to stand through the winter, and to make a good display the following season.

Vines, Peaches, and Apricots.—Attend to the stopping and training of Vines as required in the different stages of their growth; this should never be deferred for a day after the proper time, as from their naturally rapid growth their energies become so far wasted if neglected in this respect. Peaches under glass should be continually examined, removing all superabundant shoots and thinning the fruit by degrees; use the syringe freely every afternoon to keep down red spider, as if this insect make its appearance early, it is troublesome to deal with when it has obtained a firm footing. As soon as the blooming of Peaches on open walls is over, they should be closely watched for green fly; the slightest curl on the leaves is an indication of its presence. Where Lettices are grown at the foot of such walls, a few of the mature insects generally secure a lodgment on them through the winter, and from them the first brood usually are communicated to the Peaches. Immediately they are discovered on the trees, syringe the affected parts with Tobacco or Quassia-water, or soap-suds in sufficient quantity and carefully applied will destroy them. As it takes no more than a fortnight from the time the eggs are laid to the full development of the insect, it will easily be understood that any delay in searching for them early in the season should be avoided. Look over Apricots for the small green caterpillar that gets on them, and which rolls itself up in the leaves, squeezing those that are so affected between the finger and thumb; timely attention here again will save the trees from much injury.

Strawberries.—There is nothing so good as Strawberries to grow on ground that has been long cropped with ordinary culinary vegetables, as they enable the land to recover from the effects of a too long succession of roots, which have abstracted the essential plant-food-supplying elements from the soil. Strawberries, also, where well managed, are, by the nature of their growth, likely to prevent the development of weeds, as ground that has been occupied by Strawberries for some years, when properly attended to, is usually free from weeds of an annual description. The present time (previous to putting on the mulching) is the best for destroying weeds; the ground, when dry on the surface, should be carefully gone over with the hoe, so as to cut off all that are annual, and that have come up from seed; any Grass that happens to be amongst them should be hand-picked and removed. After being thus treated the mulching should be put on; this should consist of the material as it comes from the stables, litter and manure together, which is much better in every way than the clean straw which is frequently laid amongst Strawberries a short time before the fruit begins to ripen, as from the nature of the stable refuse, it lies closer to the ground, has a better appearance, and equally effects the object in keeping the fruit clear from splashings with heavy rains at the time of ripening, while its manurial elements annually applied enrich the soil sufficiently for the support of the plants to keep them in a bearing condition so long as it is advisable to retain them on the same ground; and by putting on this littery manure thus early it gets washed completely clean by the rains, so that it is not in the least offensive at the time the fruit is fit to gather: as much should be laid on as will cover the ground effectually. When first put down it ought to be about 3 in. in thickness (or even a little more will do no harm

on land that is liable to get overdry through the summer), as the greater the quantity applied, the better will it effect the objects of keeping the fruit clean, of stopping the moisture from being lost to the soil by evaporation, of keeping the ground moist so as to enable the fruit to swell to a handsome size, and of effectually preventing the growth of weeds that otherwise would again spring up through the summer.

Celery.—More Celery should now be pricked out in beds of prepared soil; give plenty of water to that pricked out some weeks ago. This vegetable is almost an aquatic, and on no account should it ever be allowed to get dry at the root, for such a condition not only stunts the growth, but if the variety happen to be such as is disposed to run prematurely to seed, a deficiency of water in the early growth is calculated to aggravate the evil.

Beans.—Sow Dwarf and Runner Beans. It is now about a fortnight later than the usual season for putting in these, but except in the most favoured localities as to soil and climate, it will be quite early enough, as the weather and the state of the land up to the present time have been prejudicial to the favourable growth of such plants. Both Dwarf and Runner Beans are amongst the tenderest vegetables that are grown, and, during their first stages, are very impatient of the slightest frost, and even when the temperature does not quite fall below freezing point, they make little or no progress. The seed also requires the ground to be in a drier and warmer condition when put in than any other vegetable, consequently the driest part of the garden must be selected for them. Sow the Dwarf varieties 2 ft. apart and from 6 in. to 9 in. asunder in the rows—the latter distance will not be too much where the ground is rich; there is nothing gained by crowding Dwarf Beans too close together, as the length of time the plants are able to keep on bearing is thereby shortened. Runner Beans ought to be grown 9 in. to 12 in. apart in the rows, and where tall sticks are obtainable, from 5 ft. to 6 ft. between the rows. If they be grown without sticks (in which way they will succeed well by pinching out the points of the shoots when they have attained a height of 2 ft. to induce them to branch out) 3 ft. between the rows will be quite enough.

Cauliflowers, Brussels Sprouts, and Broccoli.—When spring-sown Cauliflowers and Brussels Sprouts have got about 3 in. high, they should be thinned out in the seed-beds so as to leave them 6 in. apart, or if transplanted into a nursery bed at the above size, it will be still better for the plants. The beds to receive them should consist of light, open soil, tolerably rich, and about 6 in. in depth, on a hard surface of ashes; so managed, they will attain size and vigour by the time they are required to be finally planted out, and can be moved to where they are to be grown even in dry weather, as they will be found with a far greater body of roots than when allowed to remain in the seed-bed until the time of planting. The final planting can also in this way be longer deferred, thereby giving additional time for the clearing of the ground they are to occupy, which, especially in small gardens, is an advantage worth considering. Another sowing of summer Cauliflower, as well as some more Veitch's Autumn Broccoli to succeed the first sowing, should be made; also more Broccoli to come in through the winter and spring. All seeds of this description should have a good open situation away from trees and walls, under the influence of which these vegetables are often sown, the effect being that the plants always become drawn and weakly. When the ground is dry on the surface, any that has been cropped for some time should be hoed over as soon as there is an appearance of weeds; by thus disturbing them directly they vegetate, much less labour is involved in their destruction than if they be permitted to attain a considerable size. Use the implement freely, so as to stir the ground 2 in. or 3 in. deep, leaving the top as loose and open as possible, which will assist the growth of the crops.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

May 7.—Potting scarlet, pink, and white Pelargoniums. Shifting seedling Petunias into 6-in. pots. Shaking out and repotting Bovardias, and afterwards placing them in a gentle bottom-heat. Sowing Centaureas, Coreopsis, Jacobæas, and Celosias; also Marjoram and Basil, and two more rows of Scarlet Runners. Planting four rows of Celery and Lettuces on the ridges. Pricking off Basil and a frame of Celery. Staking Tree Carnations and placing them in the open air in a sunny situation. Putting in cuttings of scarlet Pelar-

goniums and *Panicum variegatum*. Watering Radish, Mustard and Cress, and other seed-beds. Getting Garibaldi Strawberries that have been forced out-of-doors to harden them off previous to planting. Hoing among all growing crops.

May 8.—Potting double-flowered Wallflowers, scented-leaved Pelargoniums, and *Deutzia gracilis*; also Ridge Cucumbers. Repotting *Cypripedium niveum* and concolor in grit, sand, and peat. Sowing pots of Mignonette and beds of Chervil. Planting Vegetable Marrows and pricking off a frame of Stocks. Dibbling in Beet seed where plants have failed to come up regularly. Putting Balsams in intermediate pits. Thinning Turnips. Stopping the shoots of Broad Beans as fast as they come into flower. Staking Collinsias and other annuals intended to flower in pots. Earthing-up spring-planted Cabbages and Cauliflowers. Hoing among Rose trees, Raspberries, Carrots, Parsnips, and Peas. Sticking Peas as they require it. Washing Camellias and syringing Peaches and Nectarines with soft soap and Tobacco-water to kill apaches.

May 9.—Sowing *Rhodanthe Manglesi* and another crop of Spinach. Pricking out East Lothian Stocks in frames, and Lettuce plants in beds out-of-doors. Putting in Coleus and *Scutellaria* cuttings. Tying Carnations and staking Delphiniums. Placing Camellias at one end of greenhouse and putting shade over them. Earthing-up Broad Beans; also French Beans in pots. Putting all spare hand-lights over French Beans in border. Filling up blanks and watering Cauliflower plantation; also watering Turnips and mulching Strawberry beds with short straw to keep the fruit clean.

May 10.—Potting Capsicums, Tomatoes, and Cucumbers; also Globe Amaranths and Petunias. Putting *Lælia alba* in large pan, and hanging *Dendrobium crystallinum* in East India-house. Sowing another crop of Turnips, Lettuces, and French Beans. Staking Heliotrope and Mignonette in pots. Tying down Peach shoots so as to expose the fruit to the sun. Thinning Grapes and stopping late Vine shoots. Staking pot Vines and Peas. Preparing land for Scarlet Runners. Earthing-up Cucumbers and well watering them. Tying up more Lettuces. Watering Hamburg Vine borders. Weeding and cleaning Asparagus beds, and manuring inside late Vine border.

May 11.—Potting Heliotropes in 4½-in. pots for summer blooming; potting off Tuberoses, Marjoram, and Sweet Basil; also young Cyclamens, and Vine eyes. Sowing another batch of Balsams, Mignonette, Mustard and Cress, and Chervil. Putting in cuttings of Iresines, Justicias, *Thyracanthus*, *Panicum*, and Fuchsias. Clipping hedges, weeding Violet beds, thinning Turnips, raking land ready for sowing Peas and Beans, watering Cauliflowers, and top-dressing Lilliums. Earthing-up Broad Beans. Hoing Strawberry plantations previous to mulching them with short litter. Manuring and digging land for planting Savoys. Putting horse-droppings in Mushroom shed ready to make another bed.

May 12.—Potting off spring-struck scented Verbenas. Shifting scarlet Pelargoniums, Stocks, and *Anemone japonica* into large pots. Sowing White Stone Turnips. Making ridges ready for planting Vegetable Marrows. Watering Fig-house border. Fumigating Cucumber, Rose, Gardenia, and Stanhopea houses for green fly. Top-dressing planted-out Gardenias with loam and manure. Putting Primulas into intermediate-pits. Manuring Celery trenches. Sticking Peas and Scarlet Runners. Thinning Carrots and Turnips. Clearing Watercress beds of weeds. Cutting down remainder of old Fuchsias, and placing them in Peach-house to start into growth. Watering seed-beds with weak guano water.

Indoor Fruit Department.

Pines.—Plants of these that started early in winter will now be ripening off their fruit; therefore withhold water when colouring takes place, if the soil about their roots be in proper condition. At this stage of growth, if the room be wanted for others, they may be removed to a Vinery in which Grapes are ripening. Plants started at the beginning of this year will be swelling their fruit fast, and should have a night temperature of from 70° to 75°, according to the state of the weather, with a bottom-heat of from 85° to 90°; maintain a high temperature by day where sharp forcing is requisite, giving air early on fine days, and shutting up so as to derive as much benefit from the sun as possible, and allowing a temperature of 90° when available in the afternoon. Sprinkle overhead through a fine rose, but avoid heavy syringing; damp all available surfaces, and keep up an amount of moisture corresponding to the temperature required, without the free use of the evaporation troughs at this dull season. Plants at this stage will require careful attention as regards watering; keep them in a free-growing, moist state at the roots; examine them weekly, and do not withhold water until colouring

takes place. Succession Pines potted as before directed will now be growing fast, and should have every attention as to watering; let it, however, be done with care so as not to sour the soil. Give air early and freely in fine weather, admitting it at intervals in such a way as to prevent cold draughts, reducing it in the same manner, and shut up early with moisture sufficient to keep up a humid atmosphere. The night temperature may be allowed to fall as low as 70° before morning; the bottom-heat should be 82°.

Vines.—In some instances early Grapes are ripe and gathered, and where such occurs in the case of permanent Vines, look carefully to the condition of the border; if dry, give it a thorough watering, and well mulch it with rotten manure to prevent evaporation, well syringing occasionally to prevent spider gaining a footing. Where Grapes are swelling off, shut up early in the afternoon, taking all due advantage of the sun's rays, and maintaining humidity in keeping with the clearness of the atmosphere outside. If red spider exist, advert to hand-sponging as the best means of getting rid of it; where front air is carefully and judiciously used, it seldom makes its appearance if all due attention be paid to watering and shutting up. Houses started two months ago will require every attention as to stopping, tying, and the regulation of the shoots. Good foliage being of the greatest importance, encourage main leaves by allowing the side shoots to run to the next Vine, or say 3 ft., which will be in some respects more than equal to being stopped three leaves beyond the bunch with lateral leaves. At all times a fixed system should be followed, and pinching done in an early stage of growth, so as to allow of the finger and thumb doing the necessary work. Look over weekly, and rub out growths not wanted; see to the thinning of the bunches as soon as the berries begin to swell; avoid over-thinning in the first instance before the nature of the bunch can be fully realized, it being better to revert to it again. Water freely during this active state of growth; where inside borders are playing an important part, with a thorough drainage over-watering with tepid water is almost impossible. During dull weather, where the heat is kept up by hard firing, avoid the free use of the evaporation troughs, which tend to induce warts, of which the Vine is so susceptible. Allow Hamburgs a night temperature of 65° after they have pushed their buds freely, and Muscats 70°, with an increase while in bloom. Treat Lady Downes and other late sorts as Muscats at this particular stage.

Peaches and Nectarines.—Houses started in November will now be ripening their fruit; any foliage obstructing the sun's rays should therefore be pushed aside. A somewhat drier atmosphere should also be maintained with a freer circulation of air given gradually, so that no check may take place. If the young wood show no signs of grossness, let the border have a top-dressing of decayed manure, if not already done, and be well watered. If for any reason the border has been kept drier through the growing season than is usually the case, withhold water at this period, otherwise splitting will occur, and render the fruit of little value. In succession-houses tie in the young wood, allowing it to be fully exposed and well ripened, which goes a long way towards ensuring next year's crop; thin the fruit by degrees, and ward off green fly by means of Tobacco-smoke, and spider and thrips by a free use of the syringe. Trees growing grossly should be allowed to bear a heavy crop; rub off all front and back shoots, shut up with sun-heat where necessary to push on growth, syringe freely, and maintain a night temperature of 60° before stoning takes place; after that 5° more may be allowed.

Figs.—These, like other fruits when ripening, are benefited by a somewhat dry atmosphere, which greatly assists the flavour. Plants in pots at times can be removed to a drier house, but when planted out in a Fig-house, that cannot be done. Well water the borders after the first crop is gathered; also mulch and well water pot-plants with manure-water. Thin crops thickly set, for if allowed to remain too long unthinned, more dropping of fruit takes place than need be.

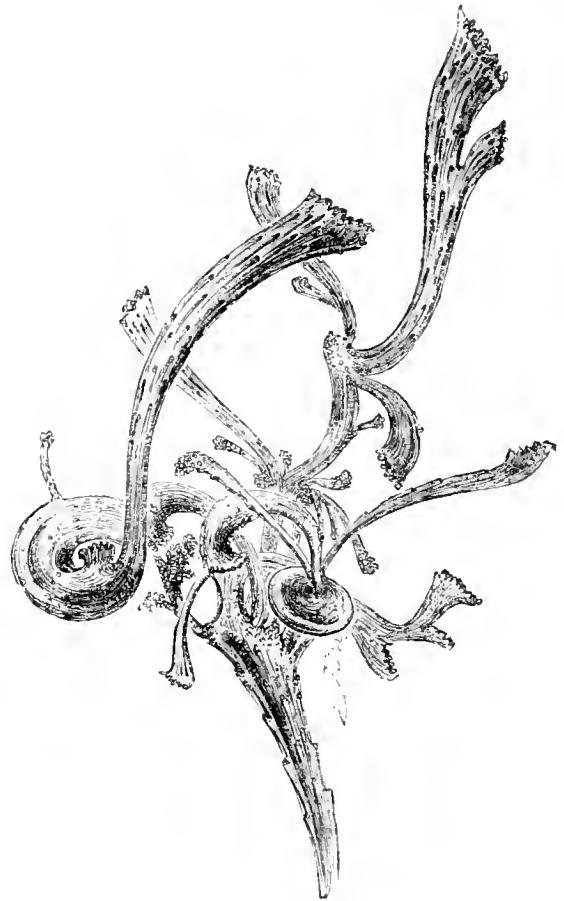
Strawberries.—Continue to forward succession batches of these according to the demand. They do better now in pits or frame than in houses in which other occupants require artificial heat. Thin out the fruit as early as possible after it is set. If they be allowed to stand and ripen it off where they set it, place them on turves with the grassy side down, a condition which greatly assists the swelling and colouring, and suits the end in view much better than saucers. Retard early crops where necessary by moving the plants into a cold-house or pit just before colouring takes place. If red spider make its appearance on Strawberries in Vineries, it must be at once removed.—J. HUNTER, *Lambton Castle*.

Watts' Excelsior Broccoli.—This is an excellent mid-season variety; when sown in the middle of May, and planted after Potatoes, the plants do not grow to a great size, and the objectionable large stalk is thus obviated. When the heads are as large as a tea-cup, they may be cut for table.—R. GILBERT, *Burghley*.

TREES AND SHRUBS.

REMARKABLE HARDY SHRUBS IN WICKLOW.

WHEN recently examining a very interesting collection of hardy shrubs belonging to a friend in the county of Wicklow, I was much struck with the extraordinary appearance of a very fine and well-grown specimen of that most curious and rare tree, the Cockscomb Ash, which I had never before seen, and of a branch of which the accompanying woodcut gives an accurate and faithful representation. The tree was purchased about forty years ago when about 1 ft. high from an Irish nurseryman, and is grafted on the common Ash. Its present height is 10 ft. 9 in., girth of stem at the junction of the graft, 22 in., and circumference of the branches, 34 ft. It was moved to its present position when about 4 ft. high, and is growing in rich, deep, well-drained loam. The beautiful



Branch of Cockscomb Ash.

little Mayflower of Canada (*Epigaea repens*), so difficult to manage or get to bloom in this country, was also in flower, planted on a raised and well-drained bed of black peat-mould in a shady corner of the garden. If this pretty pale bluish-flowered, Hawthorn-scented little hardy trailer could once be got to acclimatize itself in our peaty woods, it would be a most desirable acquisition. I here also saw for the first time in this country the *Ruscus aculeatus* or Butcher's Broom, pretty freely covered with its handsome bright scarlet berries produced so curiously from the centres of the leaves; so conspicuous and ornamental are these berries, which resemble those of the *Solanum capsicastrum* but of a much deeper shade of red, that in the South of France where the plant produces fruit freely, and where Holly berries are exceedingly scarce, it is largely used by English people wintering abroad for Christmas decoration, and forms an admirable substitute for the Holly. Why it does not generally produce its handsome fruit in Ireland, where it otherwise seems to flourish so admirably, I am at a

loss to understand. I here also recognized the identity (a circumstance which had some time ago been brought under my notice by a nurseryman in the North of Ireland) existing between *Eurybia parviflora* and the shrub sent out a year or two ago under the new name of *Olearia Haastii*, my friend having a large bush which he had had for many years under the former name, and also a small plant which he had recently received as a new hardy shrub under the latter name. W. E. G.

ORNAMENTAL CHERRIES.

In the genus *Cerasus* we have a large group of species and varieties of evergreen and deciduous trees and shrubs, very dissimilar in general appearance and habit of growth. They are indigenous to Europe, Asia, and America, and with few exceptions, hardy enough to withstand our severest winters in the open air. Several of the species have been long in cultivation, and are still among the best known and most prominent of the trees and shrubs which adorn our parks and pleasure grounds. To this genus belong the Bay and Portugal Laurels—themselves the grandest and most useful of our hardy evergreens—while the no less ornamental Cherries, apart from their importance as fruit-bearers, are favourably known as being among the finest of our deciduous flowering trees. Of the species in cultivation, the most useful for decorative purposes are the following:—

The Gean or Wild Cherry (*Cerasus Avium*), sometimes called *C. sylvestris*, is a bushy, deciduous tree, growing to a height of from 30 ft. to 40 ft. It is a native of Britain and several other countries in Europe and Northern Asia. The flowers, which are pure white and produced in bunches from the sides of the shoots, are generally very abundant, and expand in April. The wood being hard, close-grained, and of a fine reddish colour—resembling, when polished, some of the varieties of Mahogany—is employed by cabinet makers in some of their finest work. Besides its importance as an ornamental tree, the Gean is interesting as being one of the parents of a long list of fruit-bearing varieties, obtained by hybridizing with the Common Cherry (*C. vulgaris*). The Wild Cherry has been freely introduced into our parks and ornamental plantations, where its handsome habit of growth, elegant foliage, and the great profusion of its showy blossoms, render it a popular favourite. Though by no means particular in regard to soils, it is always seen in greatest perfection in such as are light and porous, and produces its flowers most abundantly in a sunny aspect.

DOUBLE-FLOWERED GEAN (*C. Avium*, fl.-pl.).—When in bloom, this form is even more effective than the parent, the large double flowers being produced in great profusion, while the tree is of a comparatively small size. Having a somewhat dwarfer habit of growth, the result probably being propagated by grafting, it is admirably adapted for planting in shrubberies, or as a single specimen on a lawn.

The Common Cherry (*C. vulgaris*).—This is a bushy, deciduous tree, of from 25 ft. to 30 ft. in height; it is indigenous to the temperate parts of Continental Europe, and probably, also, to Britain, where, though not now found in a wild state, it has been cultivated from a remote period; the leaves are of an ovate-lanceolate form, serrated, and of a bright, glossy green colour; the flowers, which expand in April and May, are snowy-white, and have a splendid effect when in perfection. As an ornamental tree, the Cherry occupies very much the same position as the Gean, which it resembles so closely in foliage, flowers, and general appearance, that some are of opinion that though distinct enough for popular identification, they should be included in one species. In addition to the large number of varieties of this species cultivated for their delicious fruit, there are several others highly esteemed as decorative trees, and of these the following are the most distinct and desirable:

DOUBLE-FLOWERED CHERRY (*C. vulgaris* fl.-pl.).—This forms a neat, moderate-sized tree. When covered with its clusters of pure white, Daisy-like blossoms, it is an object of singular beauty.

FRENCH CHERRY (*C. v. gallica*).—This has large, white semi-double flowers, produced in remarkable abundance; it has a more compact, pyramidal habit of growth than the species, and is much valued as a lawn or park tree.

ACUBA-LEAVED CHERRY (*C. v. acubæfolia*).—This differs chiefly from the type in its leaves being beautifully blotched, rendering it very effective as a contrast to the dark greens of most of the other deciduous ornamental trees.

TOBACCO-LEAVED CHERRY (*C. v. nicotianæfolia*).—This has much larger leaves than any of the other sorts. They are of a deep, shiny

green, and, like those of the species, serrated. It forms a dense and very symmetrical tree, well deserving a prominent situation.

The Bird Cherry (*C. Padus*).—This is a broad, bushy, deciduous tree, of from 20 ft. to 40 ft. in height; indigenous, and also found wild in Central and Northern Europe; the leaves are of an ovate-lanceolate form, serrated, and of a warm, green tint, assuming as they decay a reddish colour, and, when bruised, have a pleasant odour; the flowers are individually small, but being borne in long drooping racemes are very showy; they are pure white, and generally in perfection in May. The fruit, which in most seasons is very abundant, is ripe in July, and though not tempting to the human palate, is greedily devoured by most of the small birds; hence the popular name Bird Cherry. It is, as it richly deserves to be, a great favourite in our ornamental grounds, forming as it does an exceedingly handsome specimen tree, and well adapted for associating with others in mixed plantations. There are several varieties in cultivation, of which the following are the most distinct:

ACUBA-LEAVED BIRD CHERRY (*C. P. acubæfolia*).—This differs only from the species in its leaves having a bright, golden variegation; it is a fine lawn or shrubbery tree.

DOUBLE-FLOWERED BIRD CHERRY (*C. P. fl.-pl.*).—A remarkably pretty sort, with double flowers produced in great profusion; it is somewhat dwarfer than the parent.

GLAUCCOUS-LEAVED BIRD CHERRY (*C. P. glaucifolia*).—This variety is valued for its shining foliage; of a peculiar, light green foliage. The flowers are similar to those of the species.

BROAD-LEAVED BIRD CHERRY (*C. P. latifolia*).—This is worthy of introduction into ornamental plantations for its large and handsome foliage.

The Perfumed Cherry (*C. Mahaleb*) is a deciduous shrub or low tree, indigenous to Central and Northern Europe, particularly to France and Switzerland, where in mountainous districts it occurs in great abundance, forming a densely-branched bush of from 15 ft. to 20 ft. in height. It has been cultivated in British gardens since 1714. In the countries where it abounds the wood is much sought after for fancy cabinet work, as, in addition to its excellent quality and its capability for receiving a brilliant polish, it has an agreeable perfume. The bark is smooth and of a pleasing whitish-gray colour, quite distinct from that of any of the other sorts. The leaves are ovate, sharp-pointed, slightly scented, and of a pale lead, green tint. The flowers, which are pure white and strongly scented, are produced in roundish racemes from the sides of the branches. They expand in April or May, and are succeeded by small black drupes or berries which ripen in July, which, though by no means palatable to man, afford a rich feast to fruit-eating birds. This species is sometimes employed as a stock on which to graft the edible Cherries, the object being to dwarf the plants, and to induce precocious fruit-bearing, rendering them handy for pot culture under glass. If less showy so far as regards flowers than some of its congeners, and not now so commonly met with as it was half a century ago, the Mahaleb is nevertheless a pretty tree, well suited, from its handsome habit of growth and elegant warm, green foliage, for blending in ornamental plantations with others of more sombre tints, and, as it thrives in poor gravelly and dry calcareous soils, it might with advantage be much more utilised than it is for clothing banks and similar situations where few shrubs and trees would find sustenance. The following varieties are popular among admirers of decorative trees:—

WEeping PERFUMED CHERRY (*C. M. pendula*).—This variety has weeping branches, and when grafted on stocks of the common Gean about 5 ft. high, it forms a neat specimen, useful for a small lawn, the centre of a flower-garden bed, or an open position in the shrubbery.

VARIEGATED PERFUMED CHERRY (*C. M. variegata*).—This has leaves prominently blotched and margined with light yellow or straw colour. It grows quite as freely as the parent, and its variegation is always best developed in a sandy, rocky soil, and in an exposed sunny aspect.

The Virginian Bird Cherry (*C. virginiana*).—This is indigenous to Virginia, to several of the United States, and also to some of the milder parts of Canada, where it forms a stately tree of from 50 ft. to 80 ft. in height, with long, wiry, drooping branches. It has been cultivated in our ornamental plantations since 1724. The leaves are oblong, tapering to a sharp point, serrated, and smooth glossy green. The flowers, which are pure white, are borne in long racemes from the sides of the branches; they expand in May, and are in most seasons very abundant, and in milder districts are succeeded by small red berries. In this country the Virginian Bird Cherry is generally seen as a low tree with somewhat drooping branches, never attaining those lofty heights which render it such a

conspicuous object in the landscape, and so valuable for its timber, in some of its warmer natural habitats. It is, however, none the less important for decorative purposes, and deserves to be much more extensively planted than it has hitherto been. A rich, dry soil, and a moderately sheltered situation are essential to its well-being.—“Gardener.”

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY'S SHOW.

MAY 2.

THIS exhibition was in every way an excellent one, the productions of all kinds shown being greatly in advance of anything seen at South Kensington for some years past, and the Queen's visit invested the occasion with additional interest. The Orchids and other rare plants contributed by Messrs Veitch & Son were of a very superior description, as were also the new plants and Cycads from Mr. Bull's collection. Mr. B. S. Williams, Messrs. Rollisson, and other nurserymen, also contributed effective groups of new decorative plants. Rhododendrons and Roses in excellent condition were furnished by Messrs. Lane and by Messrs. Paul and Son. Hardy flowers were shown by several growers, Mr. Dean's Forget-me-nots and Japan Primroses being greatly admired, while the collection of Daffodils, Jonquils, and other Narcissi, sent by Messrs. Barr & Sugden, was the largest and most perfect ever exhibited, containing, as it did, over 100 distinct varieties.

First-class Certificates.—These were awarded to the following new and rare plants:—

***Coleus multicolor* (Veitch).**—A distinct variety, with crimson or flame-coloured ovate leaves, deeply cut along the margins. It appears to grow freely, and may be useful as a decorative, fine-foliated plant. It comes from the Solomon Isles.

H. P. Rose Emily Laxton (Paul & Son).—A free-growing English seedling, bearing full bold flowers, the petals of which are well rounded and smooth in outline, and the colour is a rich, rosy-carmine, the older flowers being suffused with purple.

***Lomaria discolor pinnatifida* (Veitch).**—An elegant Fern often assuming a sub-arborescent habit, and bearing an ample crown of feathery, slightly-erected fronds of a peculiarly pleasing bright green tint. It is one of the most distinct of all the smaller *Lomarias*, and is well worth culture.

***Anthurium Browni* (Veitch).**—A robust-growing Aroid, with gigantic, dark green leaves nearly 1 yard in length and 2 ft. in diameter, borne on long arching petioles, useful as a stove, fine-foliated plant, and distinct from all other species in cultivation.

***Dracæna, Mrs Bause* (Wills).**—A compact-habited plant, having gracefully-disposed and brightly-coloured foliage: useful for decorative purposes, or as a dinner-table plant.

***Alpine Auricula, John Ball* (Turner).**—A strong-growing free-blooming seedling, having a clear rich golden centre surrounded with a bold border coloured like crimson velvet.

***Alpine Auricula, Florence* (J. Douglas).**—A very showy variety, large in size, and having golden paste, the body-colour being rich blackish-crimson: well worth culture either for decorative purposes or as an exhibition variety.

***Alpine Auricula, Prince* (Douglas).**—A large-flowered variety, similar to the last in form, but of a distinct blackish-purple colour.

***Self Auricula, Sarah* (Turner).**—A showy, free-growing variety bearing a good truss of smooth, circular flowers. The paste is dense and pure, the body-colour being of a rich violet-purple.

***Agave Schidigera princeps* (W. B. Kellock).**—A remarkably perfect and distinct variety of the filiferous American Aloe, the stout, dark green, dagger-shaped leaves being marked with white, and having whitish marginal filaments.

***New Zamias* (W. Bull).**—In the large collection of Cycads sent by Mr. Bull, were three varieties, to which first-class certificates were awarded, namely, *Z. Roezli*, *Z. obliqua*, and *Z. Lindenii*, all graceful plants, having broad bright green leaves on slender, arching stems. In habit these differ greatly from the kinds commonly cultivated, and when plentiful they will be noticeable as decorative garden plants.

***Pelargonium Empress of India* (Sweet).**—A distinct and showy variety, admirably adapted for decorative purposes.

***Aralia filicifolia* (B. S. Williams).**—A graceful stove shrub, having elegantly-cut foliage, and well adapted for decorative purposes, or as a dinner-table plant.

***Adiantum Williamsi* (B. S. Williams).**—An elegant, free-growing Maiden-hair Fern, having arching, tripinnate fronds 15 in. or more in length, the semi-lunate pinnae, being of a fresh Apple-green tint, and seemingly dentate around their margins.

***Cineraria, Mrs Beck* (Mr. James).**—A compact-habited plant, having circular flowers of large size, the petals of which are broad and of a dark velvety purple colour.

***Zygopetalum Clayi* (Clay).**—A free-growing hybrid plant, raised by Lieut. Colonel Clay, Wallasley, near Birkenhead. It is intermediate between *Z. maxillare* and *Z. crinitum*, and is quite distinct from *Z. Sedeni*, which is also an hybrid plant, and the result of a similar cross. The plant in question is similar to, but stronger in habit than *Z. maxillare*, and bears a five or six-flowered spike of brown-sepalled, purple lipped flowers, each bloom being about 3 in. in diameter.

***Hydrangea Thomas Hogg* (Veitch).**

Orchids.—These were well represented by large and varied groups from nearly all the principal growers, including Sir Trevor Lawrence, Messrs. Veitch & Sons, Mr. W. Bull, Mr. W. Terry, Mr. J. W. Miles, and others. Messrs. Veitch & Sons had well-bloomed plants of *Oncidium varicosum* and its allies *O. Forbesi*, *O. Marshallianum*, and the delicate lemon-yellow tinted *O. concolor*. *O. Cressus* is another distinct and effective little Orchid well worth careful culture. A pan of the snowy-white *Cypripedium nevium* bore about twenty flowers and buds. *Cattleya intermedia*, and the vivid carmine *C. Skinneri* were also very effective. Among new hybrid Orchids in this collection we noted the orange-coloured *Lælia flammea* and several *Lady's-slippers*, including *Cypripedium vexillarium*, *C. Harrisonianum*, *C. Argus*, a distinct profusely spotted kind from the Philippine Islands and others. This group was tastefully arranged, Palms and other fine-foliated plants forming a good background to it, and in front were a few delicately-tinted new *Gloxinias*, while several rare kinds of *Nepenthes* were intermixed among the Orchids with excellent effect. Sir Trevor Lawrence sent a remarkably well-grown collection, among which were three well-flowered specimens of *Cypripedium caudatum*, each bearing five large flowers; a strong plant of *Oncidium varicosum*, bearing a three-branched spike, on which were some five flowers, each being more than 2 in. across. A large plant of the ivory-white *Epidendrum bicoloratum* bore five strong spikes, on one of which we counted twelve or fourteen flowers and buds. The comparatively scarce *Oncidium Marshallianum* was represented by one of the finest examples ever exhibited; it bore three stout, branched spikes, on which there were about 100 large and richly-coloured blooms. *Cattleya labiata* bore six fine flowers, and there were in addition some well-bloomed *Lady's-slippers*, *Dendrobies*, and a richly-coloured variety of the old but valuable *Cattleya Skinneri*. Mr. Ollerhead, gardener to Sir H. Peck, of Wimbledon House, sent a small plant of *Masdevallia Harryana*, bearing sixteen flowers and buds, the former being very circular and of a rich carmine tint. Two other examples of the last-named plant shown, although not so floriferous, were distinct and effective. Mr. W. Bull had also a pretty group of Orchids, in which we noted several good forms of the golden-brown blotched *Odontoglossum triplianum* and *Phalænopsis Luddemanniana*; *Masdevallia Lindenii* was also represented by a well-grown specimen; other good plants were *Cypripedium nevium*, *C. caudatum* (bearing ten long-tailed flowers), and others. Mr. C. E. Shea, Foot's Cray, had an excellent specimen of *Phalænopsis amabilis*, bearing ten flowers and seven or eight buds on a long, drooping spike; the individual flowers measured 4½ in. in diameter, and the petals were of great substance and well rounded. Among other remarkable Orchids exhibited at this show we also noticed a well-bloomed specimen of *Dendrobium tortile roseum*, an old plant, but one now rarely seen in good condition. Mr. J. W. Miles, of Shirehampton, Bristol, had a very fine specimen of the rare *Odontoglossum Phalænopsis*, having fully 100 expanded flowers; *Cattleya Skinneri*, with eight good spikes; *Oncidium macranthum*, with twenty or thirty flowers on a long flexuose spike; and also well-bloomed examples of *Phalænopsis Schilleriana* and *Odontoglossum Pescatorei*. Mr. Roberts, gardener to Mr. Terry, had a well-coloured variety of *Cattleya Mendellii* and *Dendrobium litidlorum*. A large and well-bloomed plant of a late-blooming variety of *Coelogyne cristata* came from Mr. Stevens, of Trentham; and Mr. P. Moore sent a group of well-grown plants from the gardens at Blindon Hall.

Miscellaneous Decorative Plants.—A tastefully-arranged group of Rhododendrons, cut-leaved Japanese Maples, and orange and yellow-flowered hardy Azaleas, came from Messrs. Veitch & Son's, Coombe Wood Nurseries, at Kingston. This collection was one of the most pleasing in the Show, the vivid colours being carefully toned down by green, purple, and brown foliage. Messrs. Osborn & Sons sent an excellent and well-arranged group of dark pinnate-leaved Palms, *Pandanus Veitchii*, crimson-leaved *Dracænas*, and one or two distinct fine-leaved plants, seldom seen exhibited, such as *Oreopanax dactylifolia*, with bold lobed foliage; *Aralia leptophylla undulata*, with digitate pale green leaves, and the bright green windmill-leaved Palm (*Licuala horrida*), beside which the scarlet-spathed *Anthurium* shone out with excellent effect. Mr. Wills, sent about 100 plants of his new hybrid and seedling *Dracænas*, among which we noted the compact and vigorous-habited *D. Mrs. Wills* sturdy plants, from 12 in. to 15 in. in height, each bearing about thirty leaves, from 8 in. to 10 in. in length, and of a bright green colour, boldly striped and margined with white; *D. Mrs. Bausé*, a dwarf, slender-leaved plant, highly coloured, and excellent for decorative purposes. This received a first-class certificate. The free-growing, white, variegated *D. terminalis alba* was also well represented. This splendid group of seedling *Dracænas*, raised by Mr. Wills' manager, M. Bausé, is a striking instance of the value of careful cross-breeding. A very remarkable collection of Cycads came from Mr. W. Bull, the most distinct being *Enecephalartos cycadifolius*; *E. horridus*, also a distinct spinose kind, with gracefully-arched, glaucous foliage; *Zamia Roezli*, to which a first-class certificate was awarded, and which differs from its compeers in having very broad leaflets and slender stems; *Z. obliqua*, and *Z. Lindenii*, both of which received first-class certificates, and both distinct

broad-leaved kinds, having very bright green leaflets. The distinct habits and permanent foliage of these plants render them peculiarly desirable for conservatory decoration. A very effective group of stove and greenhouse plants came from Messrs. Charles Lee & Sons, Hammer-smith. Messrs. James Carter & Co. contributed a large miscellaneous group, consisting of Crotons, Pandanads, cut-leaved Japanese *Acer variegata*, New Zealand Flax, and slender-leaved Palms of various kinds. Messrs. Cutlisch & Son, Highgate, showed a well-grown group of hard-wooded plants, Palms, Rhododendrons, and a new bluish-white Tulip, all in excellent condition. Mr. Ratty, gardener to A. Thornton, Esq., The Hoe, Sydenham, had a well-bloomed group of Azaleas, among which we noted Leonie Van Houtte, a large, white-flowered variety; Criterion, blush-spotted; Neptune, scarlet; and Roi des Blancs, a capital white-flowered kind. Messrs. Paul & Son, Cheshunt, furnished a large and well-bloomed group of pot Roses, as well as an extensive and varied collection of cut blooms. Amongst the plants in this group the most distinct were *Centifolia rosea*, blush; *alba rosea*, white; Mme. Lacharme, the new white Hybrid Perpetual; and Captain Christy, blush. A plant of the delicate rosy La France in this collection was noticeable, bearing, as it did, sixteen or eighteen fine blooms. Messrs. Lane & Son, Berkhamsted, sent a beautiful and floriferous group of pot Roses, conspicuous among which were Beauty of Waltham, crimson; John Keynes, velvety crimson; Catherine Guillot, bright fiery rose; and the delicate reflexed Comtesse de Serouye, peach. Messrs. Lane also sent a well-flowered batch of early-flowering Rhododendrons; and an interesting collection of dwarf and grafted succulents came from Messrs. Croucher & Boller, 73, South Row, Keusal New Town. One of the most distinct plants in this collection was a specimen of the grey-haired "Old Man" Cactus (*Pilocereus senilis*). Mr. B. S. Williams contributed a large bank of new and rare Orchids, stove and greenhouse flowering plants, fine-leaved plants and Ferns in great variety. Messrs. Veitch & Son contributed a basketful of the new white-flowered Hydrangea named Thomas Hogg, a kind quite as vigorous and fully as floriferous as the common species, of which it is a distinct and valuable form, its immense heads of flowers being of a paper-white colour. This received a first-class certificate, as did also the majestic Aroid Anthurium Browni. Mr. J. H. Ley sent a well-grown miscellaneous group of Palms, Ferns, and other fine-foliaged plants, also his curious new Fern *Pteris serrulate* Leyii. Messrs. F. & A. Smith, Dulwich, had a well-bloomed lot of white, crimson, purple, and scarlet Azaleas; and a well-grown collection of large-flowered *Calceolarias* and richly-coloured *Cyclamens* and *Cinerarias*, came from Mr. James, Isleworth; well-bloomed seedling, and named *Gloxinias* came from Mr. F. K. Kingborn, Richmond. Among these were interspersed little plants of the elegant and singular-habited *Reidia glaucescens*, and graceful Palms of different kinds. Mr. J. Laing, Forest Hill, showed a large and varied bank of Azaleas and fine-foliaged plants, among which were several new forms of *Colens* and *Caladiums*, and slender-leaved *Aralias*. Mr. H. Coppin, Shirley, near Croydon, contributed a batch of well-grown Zonal and Tricolor Pelargoniums. One of the most attractive miscellaneous collections of decorative plants in the exhibition came from Messrs. J. Standish & Co., Ascot, who had double-flowered Azaleas, *Ericas*, *Cinerarias*, and fragrant Carnations, these being set in a bed of the filmy *Adiantum gracillimum*, and backed up by Palms and *Dracenas* of various kinds. Messrs. Rollisson & Sons had a splendid collection of Azaleas, among which we noted Marie Van Houtte, delicate semi-double white; President Ghellinck de Walle, crimson; and Comtesse Eugene de Kerchoue, white flaked with scarlet, as being desirable and distinct kinds. Mr. Charles Turner, Slough, also showed a well-arranged group of Azaleas and Palms, and in front of this group a treble row of choice show self and Alpine Auriculas. A very handsome group of large-flowered Clematises came from Messrs. George Jackman & Son, Woking, and among the kinds shown we noted C. Countess of Lovelace, a distinct and vigorous lilac-purple, double-flowered variety; also Vesta, with compact eight-sepalled flowers of snowy whiteness; Mrs. Baker, Maiden's Blush, The Queen, and Stella are also floriferous and desirable kinds for pot culture. Mr. J. Aldous, Gloucester Road, South Kensington, showed a well-arranged group of red-leaved *Dracenas*, *Pteris*, and other Ferns, among which the graceful Palm-like *Cureuligo recurvata* was introduced with excellent effect.

Hardy Flowers.—Of these a charming group came from Mr. Roberts, gardener at Peterborough House, Fulham. Among them we noted the white Wood Lily (*Trillium grandiflorum*), Poet's Narcissus, Veitch's Primrose (*Primula cortusoides amena*), the golden star-flowered *Doronicum austriacum*, Bluebells of various kinds, and also *Polyanthuses*. *Pæonia humilis* is a distinct single variety with crimson petals, well worth pot culture; white-flowered *Candytufts* of various sorts, and Solomon's Seal were also shown in good condition, and much admired. Mr. Candwell, Wallingford, sent a well-grown group of seedling *Polyanthuses*, including crimson, purple, yellow, and fancy variegated or parti-coloured kinds. Messrs. Barr & Sugden, King Street, Covent Garden, showed a collection of Narcissus flowers, comprising over 100 distinct sorts, some of which were very showy. Among them were a quantity of new seedling forms and several of the older kinds now very rarely seen in cultivation. Mr. R. Dean furnished a lovely group of Forget-me-nots and Daisies of various colours, together with golden and crimson-flowered Wallflowers, and some cut-petalled and distinct-coloured forms of Veitch's Japan Primrose. Some distinct laced Auriculas belonging to the Alpine section were much admired in this group. Mr. H. Parr, The Gardeus, Harrow Weald Park, sent twenty-four gold-laced *Polyanthuses*. Messrs. Brooke & Gallop again contributed specimens of their new spiral Mignonette, a kind large in size, and exquisite as regards odour. The specimens

shown were grown in 6-in. pots, and bore from six to ten large spikes of flower, associated with fresh and healthy foliage, also of large size. Mr. H. J. Elwes sent cut flowers of *Gladiolus insignis*, a scarlet-flowered plant from the Cape of Good Hope, likely to prove useful as a winter-blooming decorative plant; also a flower of a new Iris, seemingly intermediate between *I. susiana* and *I. iberica*, its ash-grey, speckled flowers being 5 in. or 6 in. in diameter. The same exhibitor also sent five wild species of Tulips from various parts of the Levant: these were Tulipa Eichleri, T. Haageri, T. Clusiana, T. fragrans, and T. Orphanides. A pan containing three forms of the hardy North American *Cyrtopodium acule*, remarkably well grown, also came from Mr. Elwes: one form had very broad foliage and very large but pallid flowers on long, flexuose scapes; another had flowers and leaves of medium size, but of a rosy-crimson tint; while a third, similar to the last in habit and size of flower, bore pale-tinted blossoms. The plants were in the most vigorous health; indeed, we never saw this Lady's-slipper so vigorous before. Mr. J. Wills sent an admirably arranged group of slender-stemmed Palms and flowering plants of various kinds, in addition to a tasteful plateau of fresh living Moss, on which were disposed soft yellow and blush Rose-buds, and the gracefully arching spikes of *Phalenopsis Schilleriana*, the whole being flanked by choice Palms and Pitcher-plants of various kinds.

Floral Decorations.—These were well represented, some of the arrangements being remarkably bright and effective, but the sameness of form, and in some cases grouping, prevented our enjoying them so much as could have been wished. If we want to buy a graceful group of flowers we must perforce have a pyramidal one for the coat, and a more or less Mushroom-shaped one for a bouquet, nor are dinner table decorations a whit more variable; we get different flowers and a strange mixture of colours sometimes; it is true, but even the best of our floral decorators have not yet learnt that symmetry and artistic taste are not synonymous; the reverse of this often being more strictly true. In the dinner table decorations Mr. C. Burley, of Brentwood, was first with an arrangement consisting of three March stands lightly filled with Maiden-hair Fern, the scarlet and white flowers of *Clerodendron Balfourii*, blue *Cineraria* blooms, pink and white *Fuchsias*, and pink *Rhodanthe*, the bases of the stands being hidden in a mass of feathery Fern fronds, white Arum Lilies, and Pink Roses with Azaleas, and a few smaller flowers here and there. The extreme lightness of the two upper tiers in Mr. Burley's stands was due to their edges being fringed with the Pampas Grass slit into extremely narrow thread-like pieces. Mr. J. Aldous who was second in this class, had a really distinct and novel arrangement, consisting of seven low March stands which we recommend him to repeat substituting a Cocos or other graceful Palms for the central and largest stand, so as to break up the monotony which was evident on this occasion. The flowers employed in this decoration were pink and white *Pelargoniums*, white Japanese *Spiraea*, Lily of the Valley, *Deutzia*, *Eucharis*, and others, enshrouded in a light filmy haze of Maiden-hair Fern and *Isolepis gracilis*. Messrs. Pounce & Son, who obtained the third award, had a good arrangement; as had also Mr. J. Hudson, whose two March stands were very artistically filled, the weakest point being the central Palm, which was scarcely striking enough for such a position. About thirty bouquets of various kinds were exhibited, besides crosses, wreaths, and button-hole flowers in profusion. The best bouquet came from Mr. Bromwich, of the Buckingham Palace Road, who had one of the most tasteful ball-room arrangements which we have yet seen. It consisted of a perfect white *Camellia* as a centre, around which were tastefully disposed Moss, Tea-scented, and other Roses, pearly *Stephanotis*, *Bouvardias*, Lily of the Valley, and other choice flowers, the whole being fringed with Fairy Rose-buds and leaves, with here and there a delicate gariture of Fern. The same exhibitor also had other tasteful floral arrangements, including a novel Court bouquet, in which the different shaded kinds of yellow, buff, and pale orange Orchids and Tea Rose-buds were toned down by gossamer-like Ferns. Mr. Buck, of Covent Garden, had a beautiful bridal bouquet; Messrs. Wood, Parmely, & Co., Albert Gate, being third; and Mr. Stone, Covent Garden, fourth, with fairly good examples of the bouquetist's art.

Miscellaneous Fruits and Vegetables.—Mr. Haycock, gardener to R. Leigh, Esq., Barham Court, sent a good dish of James Veitch Strawberry and three brace of Cooling's King of the Cucumbers, a long, shapely, white-spined variety. Mr. G. T. Miles, gardener to Lord Carington, showed three remarkably perfect Jamaica Pine-apples and a Golden Melon. Mr. Cox, gardener to Earl Beauchamp, furnished six large Citrons of home growth. Mr. Batters sent a good dish of McLean's Little Gem Peas grown in 8-in. pots on shelves in a cool house. Mr. Pince, Cookham, contributed a dish of highly coloured Sir J. Paxton Strawberries. Mr. Wildsmith, gardener to Visct. Eversley, Heckfield, sent excellent samples of Anguste Nicaise; and Mr. Hudson, gardener at Gunnersbury House, showed a good dish of President Strawberry. Mr. Stevens, of Trentham, furnished a large branch of early forced black Cherries, and also a dish of the Black Heart and Bigarreau varieties. A variegated-leaved Cauliflower came from Mr. W. Horley, Toddington, Beds. Mr. Ollerhead, gardener to Sir H. Peck, showed a splendid dish of the fruit of the Chinese Plantain (*Musa Cavendishi*), the fruits being of very large size, and of a clear yellow colour.

Covent Garden Produce.—The collections of plants exhibited by market growers occupied both sides of the lower corridor, and formed one of the most attractive features of the show. Though somewhat formal in appearance the long lines of *Pelargoniums*, groups of *Cinerarias* and other flowering plants, received a large share of admiration from the crowds of visitors which throughout the day thronged this part of the

building. Some of the collections were arranged on stages, others on the ground, and in the latter case the effect was perhaps the best, inasmuch as every flower could be seen to the best advantage. Messrs. H. R. and G. Wright, Turner Road, Lee, contributed a well-arranged group of Palms, Dracenas, Pandanads, and Orchids, amongst which was a large and well-flowered specimen *Dendrobium eorulescens*, several good *Oncidium*s, *Odontoglossum Alexandrie*, and *Phalænopsis grandiflora*. Mr. T. C. Paget, Royal Nurseries, Clapton, showed a well-grown collection of *Spiræas*, Palms, Ferns, and Dracenas. This group occupied upwards of 90 ft. of staging, two rows of *Spiræas* were arranged at the back, next came a row of *Pteris serrulata*, in front of this were two rows of Palms (*Corypha australis*), and the front row consisted of Maiden-hair Ferns, the whole being relieved by good plants of *Dracena stricta*, *Pandanus Veitchi*, and *Pteris argyrea*. Next to this group came a collection of Show Pelargoniums from Mr. G. Braid, Winchmore Hill, who furnished examples of good culture, few of them being more than 1 ft. high, and covered with blossoms. Amongst the most conspicuous were Scarlet Gem, a good habited kind, with very large trusses of brilliant blossoms with whitish centres, the upper petals being marked with dark velvety crimson; and Duchess of Edinburgh, a very floriferous variety with white flowers delicately marked with bright red spots and stripes. This kind is something in the way of multiflorum album, but of much dwarfier and more compact habit, and the flowers are of better substance. Mr. H. B. Smith, of Ealing Dean Nursery, exhibited a collection of Tricolor and Bronze-leaved Pelargoniums, the front rows of which were embedded in Moss. These were backed up by plants of *Fuchsia Mrs. Marshall*, and all well-grown and loaded with bloom. This is the best light-flowered *Fuchsia* in cultivation for market purposes. The same exhibitor also staged an effective group of fine-foliated plants, amongst which were dwarf sturdy and well-coloured examples of *Dracena Sheperdi*, *D. terminalis*, *D. Cooperi*, *Croton Youngi*, and *Pandanus Veitchi*. These were edged with *Adiantum Parleyense* and *A. gracillimum*, between which were introduced small plants of *Pteris tremula* and *P. serrulata*, *Lycopodium formosum* and *denticulatum* laid on their sides in order to cover the pots in the front row with foliage, an arrangement which added greatly to the effect of the group. The whole were backed up by large specimens of Palms, and New Zealand Flax (*Phormium tenax*). Mr. J. Pattick, of Acton, had a mixed collection of Zonal Double, and Show Pelargoniums backed up by a row of Arum Lilies and Cannas; the front rows consisted of dwarf plants of Hydrangeas, Mignonette, Heliotropes, Coleus, and scarlet-flowered Stocks. These were in panels, by which arrangement the plants had a better effect than if they had been intermixed in a miscellaneous way. Messrs. J. & J. Hayes, of Lower Edmonton, had a large and well arranged collection, consisting of panels of scarlet Pelargoniums *Vesuvius* and *Duchess of Edinburgh*, *Eriacs depressa* and *Cavendishi*, *Fuchsias*, and Hydrangeas. These were backed up by a row of tall plants of Pelargonium Beauty of Edmonton, a brilliant crimson-flowered variety of great value for market purposes. The panels of flowers were edged with dwarf plants of the white-flowered variety of *Erica ventricosa*, *Mrs. Pollock Pelargoniums*, Fairy Roses, and Maiden-hair Ferns. The front lines were effectively broken by large plants of *Adiantum gracillimum* placed at certain intervals apart. The centre of the group consisted of scarlet Pelargoniums arranged in a semi-circle and edged with *Deutzia gracilis*. The same exhibitor also showed a large group of *Cinerarias*, edged with Fairy Roses, *Erica ventricosa*, and *Mrs. Pollock Pelargoniums*, placed alternately. Amongst the *Cinerarias* were some very dwarf-habited kinds, with well-formed flowers of rich colours. Messrs. F. H. Pounce & Sons, Hendon, had a group with a large *Lomaria gibba robusta* in the centre, and a *Dicksonia antarctica* at each end; the rest of the plants, which consisted of well-grown Pelargoniums, *Spiræas*, and *Cytisus racemosus*, were mixed together, relieved here and there by the overhanging leaves of *Dracena Cooperi*, and those of several varieties of Ferns: an edging of *Selaginella denticulata*, backed up by a row of Maiden-hair Fern, small *Lomarias*, and *Crotons*, rendered this group most effective. Messrs. Beckwith & Sons, of Tottenham, showed a group consisting of 600 Pelargoniums, which occupied a space upwards of 70 ft. in length; than these better examples of good cultivation could scarcely be imagined; they were grown in 5-in pots, and on some might have been counted as many as fifteen or twenty large trusses of bloom, and the foliage, which was of the deepest green, was produced in abundance close down to the rims of the pots. Amongst the varieties, of which there were some thirty or more, some of the best were Digby Grand, *Triomphe de St. Maude*, grande, and *Rob Roy*; the colours were skillfully distributed, and through the centre of the whole ran a row of *Duchess of Bedford*, a new white flowered Pelargonium, lately raised by Mr. Beckwith. Several plants of the same variety also formed a group in the centre; these were grown in 8-in. pots, and several of them were nearly 3 ft. through and not more than 2 ft. in height, and literally masses of blossoms. Messrs. Hawkins and Bennett, Lily Gardens, Twickenham, showed a capital collection of Zonal Pelargoniums, which were arranged in three semi-circular groups, the ends of which consisted of Madame Vaucher and Christine, the centre being filled with large bunches of cut blooms of scarlet, white, and pink kinds inserted in Moss, and edged with Maiden-hair Fern. A band of Scarlet Pelargonium *Dr. Lindley* encircled each colour, and the spaces between were filled up by plants of Maiden-hair Fern or white and pink Pelargoniums; *Isolepis gracilis* and *Selaginella denticulata* formed a good edging for this arrangement, which, though perhaps a little formal, was greatly admired. Mr. John Reeves, Acton, showed an extensive collection which occupied 120 ft. of staging; the back row consisted of large plants of Arum Lily, Palms, and standard plants of Guelder Rose. Hydrangeas and *Fuchsias* were arranged in panels edged with *Gardenias* and *Dracenas*. In the centre the letters

V. R. were formed of Lily of the Valley set in a bed of *Selaginella* and *Coleus*. Rows of show Pelargoniums from the same exhibitor were edged with Maiden-hair Ferns and Lily of the Valley placed alternately, and backed up by *Spiræas*. Mr. Reeves also staged 1000 pots of *Mignonette* of a new kind, the flowers of which are very large, while the plants do not exceed 8 in. in height. Mr. J. Seabrook, Ponder's End, showed a collection of Zonal and Show Pelargoniums and a group of *Fuchsias*. Mr. Sweet, Leyton, had a collection of flowering plants arranged that on the ground in the form of ribbon bedding; the back row consisted of *Erica persoluta alba*, in front of which were rows of Pelargonium *Triomphe de St. Maude*, *Cytisus racemosus*, *Erica colorans*, Pelargonium *Rob Roy*, *Empress of India*, and *P. Monte Christo*. In the centre was a group of Pelargonium *Empress of India*, encircled by a band of *Cytisus*, the whole being edged with *Fuchsias* and *Erica ventricosa*. Mr. Poulton, of Edmonton, had a collection of *Spiræas*, with a few pot Roses dotted amongst them, the whole being edged with Scarlet Pelargoniums and *Fuchsias*. Mr. Thomas Prestridge, of Brentford, showed boxes of Tricolor and Bronze Pelargoniums; Mr. Sawyer, of Edmonton, had a collection of *Deutzia gracilis*, Lily of the Valley, herbaceous *Calcularias*, and dwarf plants of Show Pelargoniums, arranged in panels packed up by *Thuja aurea*, *Fuchsia Mrs. Marshall*, and *Spiræas*. Mr. T. Pearce, of Hayes, showed a group of well-flowered *Eriacs* and miniature Roses; Mr. Philip Ladds, of Boxley, had Zonal Pelargoniums and *Spiræas*; Mr. Poupert, of Twickenham, sent several boxes of cut flowers as grown for Covent Garden; they consisted of *Narcissus poeticus*, *Lilacs*, Wallflowers, *Pansies*, *White Arabis*, *Hyacinths*, *Stocks*, &c.

Fruit and Vegetables.—A fine collection of fruit came from Messrs. Webber and Co., of Covent Garden; it consisted of twenty-two St. Michael's Pine-apples, *Léon le Clerc de Laval Pears*, English Apples (beautifully coloured and firm for the time of year), *Sir Charles Napier Strawberry*, and baskets of Black Hamburg and Muscat Grapes, Guernsey Figs of excellent quality, and Valencia Blood Oranges. Mr. W. Ingram, Vine Nursery, Aylesbury, showed good bunches of Black Prince Grapes, and a basket of Muscat and Black Hamburg came from the Rev. J. R. Watson, Guernsey. Mr. J. Walker, nurseryman, Thame, Oxon, exhibited a box of Mushrooms as grown on shelves and lifted in clumps; they were fine examples of growth, but discoloured through exposure to the air. Mr. W. Earley, Valentines, Ilford, contributed four dishes of dessert Apples in good condition; also a stand of Grapes, consisting of Muscats, Black Frontignan, Madresfield Court, and Black Hamburg. Two collections of vegetables were shown by Mr. Poupert, Twickenham, and Mr. Poupert, Mortlake. They consisted of excellent Seakale, bleached Asparagus, Rhubarb, Cabbage, Green Onions, Radishes, Lettuce, and Herbs. Mr. Smith, Floral Hall, Kingsland, showed two baskets of French and English Salad plants for comparison; the French quite eclipsed the English, both in quality and appearance. Amongst them were Onions, Lettuces, Endive, Dandelion (finely blanched), and Radishes. The English exhibit consisted of Endive, Lettuce, Mustard and Cress, Beet, Radishes, Tarragon, and Chervil. Mr. Mott, of Potter's Bar, showed a dozen specimens of a seedling Cucumber, raised from Improved Rabley. It has a smooth, thin skin, and is undoubtedly a good winter variety.

Miscellaneous Exhibits.—Prettily-designed specimens of colour-printing on wood, as applied to window-boxes and Palm-tubs, various sizes, were shown by Messrs. Young & Whitburn. Messrs. Fletcher, Lowndes, & Co., sent a model of a curvilinear conservatory, showing their principle of glazing with ordinary or uncured glass. Mr. Thomas, Edgware Road, showed a miscellaneous and useful collection of garden wire-work trellises, baskets, &c. Messrs. Green & Son, of Leeds, sent a large collection of their patent mowing machines and garden rollers; and Mr. Roberts, Kennedy, furnished an improved form of garden tent, easily erected, and of convenient size. A collection of useful and ornamental garden pottery came from Mr. Matthews, of Weston-super-Mare. Messrs. Waite, Burnell, Huggins, & Co., sent their new Excelsior Lawn Mowers, and Mr. F. J. Dreschler sent his seed-cleaning and measuring machinery, and also two forms of fumigating machines, both apparently effective implements.

QUESTIONS AND ANSWERS.

Green-leaved Hollies.—The two large leaves sent are from a plant unmistakably far finer than the *Ilex Sheperdi*, or *Hodgensi*, as it is also called, and the two small ones are from *Sheperdi*. Can you give me the name of the larger variety, and also that of the enclosed blooming branch of Maple?—WALTER DAWSON, *Corentry Cemetery*. [One is the Highclere Holly (*Ilex atlanticensis*), the other the Norway Maple (*Acer platanoides*).]

Peat and Loam in Italy.—I notice that much use is made in England of peat and loam. I have ascertained their names in Italian to be *torba* and *luma*, and have tried to procure these substances, but find that they are either unknown here or not used, so that it is almost impossible to get them. Can any of your subscribers tell me what I could use here as substitutes? Will they also state which are the prettiest varieties of *Hakea*?—PERRY POWERS, *Florence*.

Ferns for Room.—I should like to know if there are any Ferns that will really thrive in the air of a sitting-room without the protection of a glass.—H. E. [*Asplenium flagelliforme* is the most beautiful of all Ferns for growing in the sitting-room. The drooping fronds hang down most gracefully, each terminated by the long wire-like midrib, which is prolonged beyond the pinnae in such a singular manner. We have seen it thrive for years in the sitting-room in a window. *Nipholobolus exalustat* also does well, and we believe there are many others. Some of our readers will probably be able to advise.]

No. 2861

SATURDAY, MAY 12, 1877.

[Vol. XI.]

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES OF THE WEEK.

TREES IN LONDON.—The Duke of Westminster, whose efforts towards the opening of the squares in London deserve acknowledgment, stated the other day, while speaking of London squares at the meeting of the National Health Society, that the Plane was the only tree which would grow in towns, because it shed its bark as well as its leaves. We have several times protested against this common error. Many trees as beautiful as the Plane may be grown in London, even with its present smoky product of 5,000,000 tons of coal per annum. One of the open spaces talked of was Lincoln's Inn Fields. We have no doubt whatever, from long observation, that a whole arborescence of beautiful deciduous trees might be grown in Lincoln's Inn Fields. We shall never have beautiful squares or avenues, or planting in cities until the idea of one tree only being suitable be abandoned entirely. Why, even now, before we have begun to think seriously of planting in London in a proper manner, the Catalpas and Weeping Ashes are as healthy in the smokiest parts of London as anywhere else.

SQUARES OPEN BY TICKET.—At the meeting of the National Health Society, presided over by the Duke of Westminster on Wednesday, a well-meaning gentleman proposed to open some of the squares by ticket to the good children in schools. To those who may have seen thousands of children playing in the squares and public playgrounds of Paris, this will probably seem as wise a plan as doing out the air, or sky, or water by ticket. Better keep the dismal places shut to continue to be a monument of our narrow-mindedness and selfishness, until some succeeding generation, for very shame, will make them the ornament, and not the disgrace of London. So long as London is without any system of government, so long must we expect these and many other evils to exist. If it is to remain in the hands of the vestrymen, would it not be well to imitate the plan lately adopted by the Municipal Council of Paris, and send some of the members on a visit to other cities? Probably some of these gentlemen have never emerged far beyond the awful pall of smoke under which London is buried, and they could hardly fail to benefit by a visit to a clean and well-ordered city, where beautiful squares and playgrounds are filled with happy children.

THE GARDEN IN DRURY LANE.—Miss Octavia Hill, in her address on open spaces given on Wednesday last, defended the people from the charge of destroying the garden in Drury Lane. She had good reason to do so. In our great parks, where there is plenty of space, railings, sometimes very high, are placed round the flower-beds; here, in a contracted little spot, no such protection was given them, and consequently, when the crowds in this densely populated locality came in to see the new garden, they crowded over the edgings, but no serious injury has been done to the garden. In all such small open spaces in densely crowded neighbourhoods, what is wanted are a few well-grown trees, a gravel space, and plenty of seats. In such, with the slightest supervision, no injury could occur. Apart from the want of space and the injury from crowds to the beds, &c., the foul air in such a district as Drury Lane prevents all fine gardening, so to say. Happily, as regards the town landscapes, the shade in summer, the effect of the foliage on the air, the trees which can be grown are far more important than the flowers and shrubs, which cannot be grown in Drury Lane.

FRUIT OF STEPHANOTIS FLORIBUNDA.—I have forwarded for your inspection a fruit of the *Stephanotis floribunda*—not because I think it so very rare or curious, although many who have grown the plant for years have not had the opportunity of seeing its fruit, but because I am of opinion that some account of it in *THE GARDEN* would be interesting to many. I may add, that it has been hanging on the plant nearly twelve months.—*JOHN COCKS, Clarence Lodge, Clapham Park.* [The fruit in question, though somewhat shrivelled, measured $4\frac{1}{2}$ in. long and 7 in. round. A fruit of this plant was figured in *THE GARDEN*, Vol. VI., p. 467.]

MEDINILLA MAGNIFICA.—A plant of this, in the form of a standard, in Mr. Winsett's nursery in the King's Road, is now well furnished with large drooping clusters of rosy-pink blossoms. When grown in the shape of a bush, this *Medinilla*, when in flower, is always effective, but it is even much more so when grown as a standard. It is very

liable to the attacks of mealy bug, and some difficulty is also often experienced in propagating it; plants of it may, however, be readily struck from cuttings made of young, vigorous shoots taken off at a joint in spring, inserted in sharp sandy soil, plunged in a brisk bottom-heat, and covered with a bell-glass. Constant attention and vigorous growth constitute the only sure way of keeping the plants clear of insects, and when properly grown and well flowered, few plants better repay the trouble incurred in their cultivation than this does.—*W. S.*

ÆCHMEA MARIE REGINE.—Specimens of this are now very attractive in Mr. B. S. Williams' nursery at Holloway. The flower-spikes, which are very strong, are thickly clothed with a rosy-scarlet, bluish-tinged inflorescence, more brilliant than that of any other member of the family to which it belongs.—*S.*

DENDROBIUM CRYSTALLINUM AND TORTILE.—Specimens of each of these *Dendrobies* in Messrs. Veitch's nursery are now bearing respectively 200 fully-expanded blossoms. Plants possessing such floriferous qualities as these surely deserve more than ordinary attention.—*S.*

CHOISYA TERNATA.—Plants of this are now flowering freely in Messrs. Lee's nursery at Hammersmith, and the blossoms are agreeably scented, resembling that of the Orange. For cool greenhouses this plant is worth attention, and being nearly hardy, it may be successfully grown, even in a cold pit or frame from which frost and damp are excluded.—*S.*

RANUNCULUS BERTOLONI.—This pretty little Alpine Buttercup is now in flower in Messrs. Backhouse's nursery at York. It forms caespitose tufts close to the ground, consisting of entire, round, ornate leaves. Its flowers, which are pure white, are nearly an inch in diameter, and are borne on slender stems about 2 in. high.—*R. P.*

PLANTS IN BLOOM AT HOLLOWAY.—The plant-houses in the Victoria and Paradise nurseries are now well worth a visit; the New Holland plants, consisting, as they do, of large specimens finely in flower, are especially attractive. *Ixora Prince of Orange* and *I. Williamsi*, plants of which measure from 5 ft. to 6 ft. high and as much through, are also equally interesting, being laden with large trusses of bright orange-scarlet blossoms; *Vandas* are also finely in bloom, as are likewise *Cypripediums*, among which *C. niveum*, bearing no fewer than forty or fifty pure white flowers, was especially noticeable.—*S. C.*

ANDROSACE VILLOSA AND A. CHAMÆJASME.—These two little rock plants, which have been in lovely condition for a week or more, are now in full blossom. Both of them are very dwarf in habit, only growing about 3 in. high. *A. villosa* makes little tufts formed of rosettes of woolly leaves, from which ascend wiry stems bearing at their summits umbels of numerous white flowers with pink centres. *A. chamæjasme*, too, forms tufts, but not so compact as the former species, it having a tendency to run under the surface of the soil; the flowers of this species are white with faint yellow centres. Both kinds grow freely in good loam intermingled with small pieces of stone. It is better to keep them rather dry in winter by the protection of a projecting rock or by being placed in a cool frame.—*R. P.*

THE AMERICAN AZALEAS AT THE FULHAM NURSERIES.—The large collection of old plants of these at Messrs. Osborn's is now beginning to flower, and will be in bloom for some weeks to come. It forms one of the most beautiful sights we know of near London. The fine old varieties and species in this collection always seemed to us more beautiful in form of flower and in habit than the popular Ghent Azaleas. The plantation at Messrs. Osborn's has existed for over half a century. Mr. C. Pitman, who has long had charge of the collection of trees, first went to the Fulham Nurseries fifty-four years ago. He states that at that time some of the American Azaleas we now allude to were well-established bushes. A better testimony to their hardiness and endurance could not be desired.

AURICULAS.—At the National Auricula Show, which was held at Manchester on the 27th ult., and of which a report will be found in another column, the Rev. F. D. Horner secured nearly all the first prizes; Mr. B. Simonite, Mr. Barlow, Mr. Cooper, &c., were also successful exhibitors, Mr. Barlow being awarded a silver medal for a miscellaneous collection. The first prize for the best nine Auriculas at the Spring Exhibition of the Royal Horticultural Society of Ireland was taken by the Rev. F. Tynons with fine flowers of Superb. Turner's C. J. Perry, and Finlayson's Sir R. Peel, Mr. Leland coming next in merit with a first-rate collection.

ROSES IN POTS AT WALTHAM CROSS.—Mr. William Paul's collection of these, numbering some hundreds of plants, is now coming into bloom, and promises a fine display of flowers. Where Roses are grown so well in pots, their culture may be profitably studied on the spot.

SPRING FLOWERS AT CLIVEDEN.

MANY of our readers who have so long known Cliveden as such a charming home of spring flowers and spring-gardening will be pleased to learn that this year its beauties in this way are as remarkable as ever. As we write the Pansies, Silenes, Nemophilas, Daisies, and Forget-me-Nots, which have been greatly benefited by the few bright sunny days which we have lately had, are in great beauty. Though the colours in the different beds are all admirably arranged, formal planting has as much as possible been avoided. On some unowned parts of the lawn, and by the sides of shrubberies Wood Hyacinths may be seen in great numbers; and in similar positions Daffodils, Wood Anemones, Cowslips, and Primroses are flowering abundantly, and are much more enjoyable than when planted in large beds of formal shapes or in borders—positions in which they are too frequently met with in gardeus. In this kind of wild gardening when well carried out, as it is here, we have a succession of flowers from January to June, and that without much trouble or expense. Snowdrops and Crocuses, of course, make their appearance first; then come Daffodils, Anemones, Primroses, and hosts of other spring flowers. The vases on the terraces, being planted with Tulips and scarlet Candytuft, and edged with Nemophila, are also very attractive; when the Tulips have ceased blooming, the Candytuft takes their place, and the Nemophila, drooping gracefully over the sides of the vase, sets it off to advantage. Near a wall gay with the scarlet blossoms of the *Cydonia japonica* grow fine masses of the Common Honesty, its huge trusses of rosy blossoms waving to and fro with every breeze having a fine effect. The indoor flower department, too, is not the least attractive portion of Cliveden; the conservatory is especially gay with Camellias, Azaleas, Acacias, Schizanthuses, and other spring-flowering plants, among which we noticed a large mass of *Srelitzia Regiæ* blooming freely. On the roof are *Tacsonia exoniensis* and *T. mollissima* heavily laden with brilliant, pendent blossoms, and a Gloire de Dijon Rose, on which has been budded Maréchal Niel, is producing flowers of both varieties just now in abundance. C. S.

HYBRID TEA ROSE MRS. OPIE.—For many years after the introduction of what are commonly called Tea-scented Roses to this country from the East, the prevailing colour of their flowers was white or yellow; and if now and then pink or rose-colour were present, it was intimately blended with the yellow pigment, the result being different shades of orange or salmon-colour. Within the last few years, however, several hybrid varieties have been obtained, doubtless by means of cross-fertilization, either with some Noisette or China varieties, in which the soft shades of orange or salmon-red have been heightened into carmine or deep rosy purple, of which Duchess of Edinburgh and Chestnut Hybrid are examples. Mrs. Opie, which is a welcome addition to this class, was exhibited last season at the Crystal Palace and elsewhere, and when better known, cannot fail to be largely cultivated for forcing, as well as for cutting in the bud state for decorative purposes.—B.

EARLY-FLOWERING TOWN TREES.—Two of the most pleasing of all trees just now are the Norway and Montpellier Maples (*Acer platanoides* and *A. monspessulanum*), which form low-growing trees in St. James' and other London parks; they are especially attractive about this time of year, when every twig is terminated by dense clusters of golden-green flowers, which, unlike those of most other Maples, are developed before the leaves become fully expanded. As seen in the distance, these trees have a peculiarly warm, sunny appearance, quite different from that of any other species, and as they flourish well in smoky localities, they well deserve a place in the most select list of town trees.—B.

AMERICAN POMOLOGICAL SOCIETY'S MEETING.—The American Pomological Society, having accepted the invitation of the Maryland Horticultural Society, gives notice that the sixteenth session of this national association will be held in Baltimore, commencing Wednesday, September 12th, 1877, at 10 o'clock A. M., and continuing for three days. All horticultural, pomological, agricultural, and other kindred associations in the United States and British provinces, are invited to send delegations as large as they may deem expedient; and all persons interested in the cultivation of fruits are invited to be present, and take seats in the Convention.

Rooting Cuttings.—Cuttings of many plants can be more easily rooted if partially broken off, and allowed to hang by the bark for a couple of weeks before being planted.—"Albany Country Gentleman."

THE PLANT-LORE OF SHAKESPEARE.

(Continued from p. 359.)

Heath.

Titus Andronicus. Now would I give a thousand furlongs of sea for an acre of barren ground; long Heath, brown Furze, anything.
Tempest, act i, sc. 1.

There are other passages in which the word Heath occurs in Shakespeare, but in none else is the flower referred to; the other references are to an open heath or common. And in this place no special Heath can be selected, unless by "long Heath" we suppose him to have meant the Ling (*Calluna vulgaris*). And this is most probable, for so Lyte calls it. "There is in this countrie two kinde of Heath, one which beareth the flowres amongst the stemmes, and is called long Heath." But it is supposed by some that the correct reading is "Ling, Heath," &c., and in that case Heath will be a generic word, meaning any of the British species (see Ling). Of British species there are five, and wherever they exist they are dearly prized as forming a rich element of beauty in our landscapes. They are found all over the British Islands, and they seem to be quite indifferent as to the place of their growth. They are equally beautiful in the extreme Highlands of Scotland, or on the Quantock and Exmoor Hills of the South—everywhere they clothe the hill-sides with a rich garment of purple that is wonderfully beautiful whether seen under the full influence of the brightest sunshine, or under the dark shadows of the blackest thundercloud. And the botanical geography of the Heath tribe is very remarkable; it is found over the whole of Europe, in Northern Asia, and in Northern Africa. Then the tribe takes a curious leap, being found in immense abundance, both of species and individuals, in Southern Africa, while it is entirely absent from North and South America. Not a single species has been found in the New World. A few plants of *Calluna vulgaris* have been found in Newfoundland and Massachusetts, but that is not a true Heath.

As a garden plant the Heath has been strangely neglected. Many of the species are completely hardy, and will make pretty evergreen bushes of from 2 ft. to 4 ft. high, but they are better if kept close-grown by constant clipping. The species best suited for this treatment are *E. mediterranea*, *E. arborea*, and *E. codonodes*. Of the more humble-growing species *E. vagans* (the Cornish Heath) will grow easily in most gardens, though in its native habitat it is confined to the serpentine formation; nor must we omit *E. herbacea*, which also will grow anywhere, and, if clipped yearly after flowering, will make a most beautiful border to any flower-bed; or it may be used more extensively, as it is at Doddington Park in Gloucestershire (Sir Gerald Codrington's), where there is a large space in front of the house several yards square entirely filled with *E. herbacea*. When this is in flower (and it is so for nearly two months, or sometimes more) the effect, as seen from above, is of the richest Turkey carpet, but of such a colour and harmony as no Turkey carpet ever attained.

Several of the South-European Heaths were cultivated in England in Shakespeare's time.

Hebenon.

Ghost. Upon my secure hour thy uncle stole,
With juice of cursed Hebenon in a vial,
And in the porches of my ear did pour
The leperous distilment; whose effect
Holds such an enmity with blood of man
That swift as quicksilver it courses through
The natural gates and alleys of the body,
And with a sudden vigour it doth posset
And curd, like eager droppings into milk,
The thiu and wholesome blood.

Hamlet, act i, sc. 5.

It is not easy to determine what plant is meant by Hebenon. There are two families of plants to which the name of Ebenus has been given, of which the Ebony is one, and the other is a Pea-blossomed plant of the south of Europe. Archdeacon Nares and Mr. Douce considered that the Ebony was meant, and there is no doubt that Ebony was sometimes so spelt.

A gentle youth, his dearly loved squire,
His speare of Heben-wood behind him bare.
"Faerie Queen"—*Spenser*.

and that "the juice of Ebon" is mentioned in conjunction with other deadly poisons by some of the old writers. Mr. Beisley suggests that it is a mistake for Enoron, one of the old names of the Deadly Nightshade, but I can see no reason for this suggestion. The most usual interpretation is that Henbane (*Hyoscyamus niger*) is meant. This is a native plant of undoubted poisonous qualities, though not now considered so poisonous as it was in Shakespeare's time. Gerarde says of it:—"The leaves, seed, and juyce taken inwardly causeth an unquiet sleepe like unto the sleep of drunkennesse, when continueth long and is deadly to the party." This plant, then, will satisfy the requirements of the Hebenon of Hamlet, but in the general uncertainty I am inclined to think that both Hebenon and Henbane are generic words for any strong poison. Henbane certainly was so used by the writers of that date and later, and Gerarde confuses several plants under that name, and called Tobacco the Henbane of Peru. It should be noticed that the "bane" in the name has no reference to its poisonous qualities, the original name being "Henne-belle."

Hemlock.

- (1) *Burgundy*. Her fallow leas
The Darnel, Hemlock, and rauk Fumitory
Doth root upon. *Henry V.*, act v., sc. 2.
- (2) *3rd Witch*. Root of Hemlock digged in the dark.
Macbeth, act iv., sc. 1.
- (3) *Cordelia*. Crowned with rank Fumiter and furrow weeds,
With Harlock, Hemlock, Nettles, Cuckoo-flowers.
King Lear, act iv., sc. 1.

One of the most poisonous of a suspicious family (the Umbelliferæ), "the great Hemlocke doubtlesse is not possessed of any one good facultie, as appeareth by his lothsome smell and other apparent signes," and with this evil character the Hemlock was considered to be only fit for an ingredient of witches' broth—

"I ha' been plucking (plants among)
Hemlock, Henbane, Adder's Tongue,
Nightshade, Moonwort, Leppard's-bane."

Ben Jonson.

Yet the Hemlock adds largely to the beauty of our hedges; its spotted tall stems and its finely-cut leaves make it a handsome weed, and the dead stems and dried umbels are marked features in the winter appearance of the hedges. As a poison it has an evil notoriety, as being the poison by which Socrates was put to death, though this is not quite certain. It is not, however, altogether a useless plant—"It is a valuable medicinal plant, and in autumn the ripened stem is cut into pieces to make reels for worsted thread" (Johnstone).

Hemp.

- (1) *Pistol*. And let not Hemp his windpipe suffocate.
Henry V., act iii., sc. 6.
- (2) *Chorus*. And in them behold
Upon the Hempten tackle ship boys climbing.
Henry V., act iii.
- (3) *Puck*. What Hempten homespuns have we swaggering here?
Midsummer Night's Dream, act iii., sc. 1.
- (4) *Cade*. Ye shall have a Hempten candle then, and the pap of a
batchet. *2nd Henry VI.*, act iv., sc. 7.
- (5) *Hostess*. Thou Hemp-seed.
2nd Henry IV., act ii., sc. 1.

In all these passages the reference is to rope made from Hemp, and not to the Hemp plant, and it is very probable that Shakespeare never saw the plant. It was introduced into England long before his time, and largely cultivated, but only in a few parts of England, and chiefly in the eastern counties; I do not find that it was cultivated in gardens in his time, but it is a plant well deserving a place in any garden, and it is especially suitable from its height and regular growth, for the central plant of a flower-bed. It is supposed to be a native of India, and seems capable of cultivation in almost any climate.

Herb of Grace (see Rue).

Holly.

- Song*. Heigh-ho! sing, heigh-ho! unto the green Holly:
Most friendship is feigning, most loving mere folly:
Then, heigh-ho, the Holly!
This life is most jolly.

As You Like It, act ii., sc. 7.

From this single notice of the Holly in Shakespeare, and from the slight account of it in Gerarde, we might conclude that the plant was not the favourite in the sixteenth century that it is in the nineteenth; but this would be a mistake. The Holly entered largely into the old Christmas carols.

Christmastide
Comes in like a bride,
With Holly and Ivy clad.

And it was from the earliest times used for the decoration of houses and churches at Christmas. It does not, however, derive its name from this circumstance, though it was anciently spelt "holy," or called the "holy tree," for the name comes from a very different source, and is identical with "holm," which, indeed, was its name in the time of Gerarde and Parkinson, and is still its name in some parts of England, though it has lost its other old name of Hulver. But as an ornamental tree it does not seem to have been much valued, though in the next century Evelyn is loud in the praises of this "incomparable tree," and admired it both for its beauty and its use. It is certainly the handsomest of our native evergreens, and is said to be finer in England than in any other country; and as seen growing in its wild habitats in our forests, as it may be seen in the New Forest and the Forest of Dean, it stands without a rival, equally beautiful in summer and in winter; in summer its bright glossy leaves shining out distinctly in the midst of any surrounding greenery, while in winter it is the very emblem of bright cheerfulness, with its foliage uninjured in the most severe weather, and its rich coral berries, sometimes borne in the greatest profusion, delighting us with their brilliancy and beauty. And as a garden shrub, after all the fine exotic shrubs that have been introduced into our gardens, during the present century, the Holly still holds its own. It can be grown as a single shrub, or it may be clipped, and will then form the best and the most impregnable hedge that can be grown. No other plant will compare with it as a hedge plant, if it be only properly attended to, and we can understand Evelyn's pride in his "glorious and refreshing object," a Holly hedge 160 ft. in length, 7 ft. in height, and 5 ft. in diameter, which he could show in his "poor gardens at any time of the year, glittering with its armed and varnished leaves," and "blushing with their natural corals." Nor need we be confined to plain green in such a hedge. The Holly runs into a great many varieties, with the leaves of all shapes and sizes, and blotched and variegated in different fashions and colours. All of these seem to be comparatively modern. In the time of Gerarde and Parkinson there seems to have been only the one typical species, and perhaps the Hedgehog Holly.

I may finish this notice of the Holly by quoting two most remarkable uses of the Holly mentioned by Parkinson:—"With the flowers of Holly," saith Pliny from Pythagoras, "water is made ice; and againe, a staffe of the tree throwne at any beast, although it fall short by his defect that threw it, will flye to him, as he lyeth still, by the speciall property of the tree." He may well add—"This I here relate that you may understand the fond and vain conceit of those times, which I would to God we were not in these dayes tainted withall."

Holly Thistle.

Margaret. Get you some of this distilled Cardus Benedictus, and lay it to your heart; it is the only thing for a qualm.

Hero. There those prickest her with a Thistle.

Beatrice. Benedictus! Why Benedictus? You have some moral in this Benedictus.

Margaret. Moral? No, by my troth, I have no moral meauing: I meant plain Holy Thistle.

Much Ado About Nothing, act iii., sc. 4.

The *Cardus benedictus*, or Blessed Thistle, is a handsome annual from the south of Europe, and obtained its name from its high reputation as a heal-all, being supposed even to cure the plague, which was the highest praise that could be given to a medicine in those days. Cogan, in his "Haven of

Health," 1595, says:—"This herbe may worthily be called Benedictus or Omni-morbia, that is a salve for every sore, not known to Physitians of old time, but lately revealed by the special Providence of Almighty God" (quoted by Steevens). The plant has long lost this high character.

Honeystalks (see Clover).

Honeysuckle.

- (1) *Hero*. And bid her steal into the pleached bower
Where Honeysuckle, ripened by the sun,
Forbids the sun to enter.
Much Ado About Nothing, act iii., sc. 1.
- (2) *Ursula*. So angle we for Beatrice, who even now
Is couched in the Woodbine coverture. *Ibid.*
- (3) *Titania*. Sleep thou, and I will wind thee in my arms,
So doth the Woodbine the sweet Honeysuckle
Gently entwist. The female Ivy so
Enrings the lark's fingers of the Elm.
Midsommer Night's Dream, act iv., sc. 1.
- (4) *Hostess*. O thou Honeysuckle villain.
2nd Henry IV., act ii., sc. 1.
- (5) *Oberon*. I know a bank whereon the wild Thyme blows,
Where Oxlips and the nodding Violet grows,
Quite over canopied with lish Woodbine.
Midsommer Night's Dream, act ii., sc. 2.

I have joined together here the Woodbine and the Honeysuckle, because there can be little doubt that in Shakespeare's time the two names belonged to the same plant, and that the Woodbine was (where the two names were at all discriminated, as in No. 3), applied to the plant generally, and Honeysuckle to the flower. This seems very clear by comparing together Nos. 1 and 2. In earlier writings the name was applied very loosely to almost any creeping or climbing plant. In an Anglo-Saxon vocabulary of the eleventh century it is applied to the wild Clematis (*Viticella*—Wooden-binde); while in Archbishop Elfric's Vocabulary of the tenth century it is applied to the *Hedera nigra*, which may be either the Common or the Ground Ivy (*Hedera nigra*—Wude-binde); and in the Herbarium and Leechdoms books of the twelfth century it is applied to the Capparid or Caper-plant, by which, however (as Mr. Cockayne considers), the *Convolvulus Sepium* is meant. After Shakespeare's time again the words began to be used confusedly. Milton does not seem to have been very clear in the matter. In "Paradise Lost" he makes our first parents "wind the Woodbine round this arbour" (perhaps he had Shakespeare's arbour in his mind); and in "Comus" he tells us of—

A bank
With Ivy canopied, and interwove
With flann'ing Honeysuckle.

While in "Lycidas" he tells of—

The Musk Rose and the well-attired Woodbine.

And we can scarcely suppose that he would apply two such contrary epithets as "flann'ing" and "well attired" to the same plant. And now the name, as of old, is used with great uncertainty, and I have heard it applied to many plants, and especially to the small sweet-scented Clematis.

But with the Honeysuckle there is no such difficulty. The name is an old one, and in its earliest use was no doubt indifferently applied to many sweet-scented flowers (the Primrose amongst them); but it was soon attached exclusively to our own sweet Honeysuckle of the woods and hedges. We have two native species (*Lonicera Perelymenum* and *L. Xylostenm*), and there are about eighty exotic species, but none of them sweeter or prettier than our own, which, besides its fragrant flowers, has pretty, fleshy, red fruit.

The Honeysuckle has ever been the emblem of firm and fast affection—as it climbs round any tree or bush that is near it, not only clinging to it faster than Ivy, but keeping its hold so tight as to leave its mark in deep furrows on the tree that has supported it. The old writers are fond of alluding to this. Bullein in "The Book of Simples," 1562, says very prettily, "Oh, how swete and pleasant is Woodbinde, in woodes or arbours, after a tender, soft rain; and how friendly doe this herbe, if I maie so name it, embrace the bodies, armes, and branches of trees, with his long winding stalkes, and tender

leaves, openyng or spreading forth the his swete Lillis, like ladie's fingers, emog the thornes or bushes" (quoted by Johnstone); and Chaucer gives the crown of Woodbine to those who were constant in love:—

And tho that weare chaplets on their hede
Of fresh Woodbinde, be such as never were
To love untrue in word, thought ne dede,
But aye stedfast; ne for pleasaunce ne fere,
Though that they should their hertes al to-tere,
Would never flit, but ever were stedfast
Till that their lives there asunder brast.

The Flower and the Leaf.

The two last lines well describe the fast union between the Honeysuckle and its mated tree.

Hyssop.

Lago. 'Tis in ourselves that we are thus or thus. Our bodies are our gardens; to the which our wills are gardeners; so that if we will plant Nettles or sow Lettuce; set Hyssop, and weed up Thyme; supply it with one gender of herbs or distract it with many, either to have it sterill with idleness, or maimed with industry; why the power and corrigible authority of this lies in our wills.

Othello, act i., sc. 3.

We should scarcely expect such a lesson of wisdom drawn from the simple herb-garden in the mouth of the greatest knave and villain in the whole range of Shakespeare's writings. It was the preaching of a deep hypocrite, and while we hate the preacher we thank him for his lesson.

The Hyssop (*Hyssopus officinalis*) is not a British plant, but it was held in high esteem in Shakespeare's time. Spenser spoke of it as—

Sharp Isope good for green wounds remedies—

and Gerard grew in his garden five or six different species or varieties. He does not tell us where his plants came from, and perhaps he did not know. It comes chiefly from Austria and Siberia; yet Greene in his "Philomela," 1615, speaks of "the Hyssop growing in America, that is liked of straungers for the smell, and hated of the inhabitants for the operation, being as prejudicial to the one as delightful to the other." It is now very little cultivated, for it is not a plant of much beauty, and its medicinal properties are not much esteemed; yet it is a plant that must always have an interest to readers of the Bible; for there it comes before us as the plant of purification, as the plant of which the study was not beneath the wisdom of Solomon, and especially as the plant that added to the cruelties of the Crucifixion. Whether the Hyssop of Scripture is the *Hyssopus officinalis* is still a question, but at the present time the most modern research has decided that it is.

Insane Root.

Macbeth. Were such things here as we do speak about?
Or have we eaten of the Insane Root
That takes the reason prisoner?

Macbeth, act i., sc. 1.

It is very possible that Shakespeare had no particular plant in view, but simply referred to any of the many narcotic plants which, when given in excess, would "take the reason prisoner." The critics have suggested many plants—the Hemlock, the Henbane, the Belladonna, the Mandrake, &c., each one strengthening their opinion from coeval writers. In this uncertainty I should incline to the Hemlock from the passage in Green's "Never too Late," 1616 (quoted by Steevens)—"You gazed against the sun and so blemished your sight, or else you have eaten of the roots of Hemlock, that makes men's eyes conceit unseen objects."

H. N. ELLACOMBE.

(To be continued).

Well-fed Apple Trees.—The quality of food from a well-fed Apple tree is altogether superior to that of a half-starved tree of the same variety. Few farmers think it profitable to bring poorly-fed beef to market, and there ought to be very few who would think it profitable to raise poorly-fed Apples. Let us have fat Apples as well as fat beef. Feed the Apple trees. Too-dress with well-decayed stable manure, and apply superphosphates, bone-dust, and potash salts.—*Lewiston Journal*.

Mr. Cramb, for many years gardener to Earl Ducie, at Tortworth Court, Wootton-under-Edge, Gloucestershire, died suddenly, on the 27th ult., from heart disease. He was sixty-eight years of age.

THE FLOWER GARDEN.

REYNOLDS HOLE ROSE.

WELCOME Reynolds Hole Rose to its high place of honour in THE GARDEN! It was a happy thought of the artist to place the Roses François Michelin and Reynolds Hole on the same plate; not that one fears that either the man or the Rose bearing his honoured name is not strong enough to stand alone, but the brilliancy of the Rose in question is marvellously developed when contrasted with the soft pink of its lovely companion. Directly I saw the plate the thought struck me that the Pink Rose should have been Mrs. Reynolds Hole. Not till the author of the "Book about Roses" is thus companioned, if I may use the term, by Rosarians, will the first instalment of the debt due to him for popularizing Rose growing and showing be paid. Unfortunately, hitherto, Reynolds Hole has not reached its best here, and had I not seen it in full magnificence at Mr. Cant's and other places last year, I should have thought the artist had thrown a dash of the ardour of his imagination into the brilliancy of the Rose—but it is really not so; it is by no means flattered, and I hope to equal the plate with my Reynolds Hole Roses this season. All Roses need humouring, and require a great amount of

patience in their cultivation for a year or two. It seems often to take them some years to get over the weakening strain of excessive propagation, and to become accustomed, as it were, to their new situations. I wish the Rev. Reynolds Hole would write an article on the "humouring" of Roses in private gardens. Can it be that they are conscious at times of their own merit, that, like their growers, they need "the cooper"? Or may not the uncertainty of their full development be termed the "whims of the Roses," to give their masters a lesson in patience, a virtue that few Roses fail to crown with a rich reward in the end? I may add that notwithstanding the cold weather the Roses which were not pruned till the middle of April look remarkably well, and are breaking

strongly. Many buds were showing on the extremities of the shoots and a standard of Maréchal Niel had over fifty buds ready to open. These were all cut off, and the plant is now breaking strongly again. Maréchal Niel on walls in the open air looks starved and miserable. Indoors it has been very fine, only paler far than outside; that, I consider, adds to its beauty; it is an exquisite, soft primrose, something like the old and now seldom seen Smith's Yellow, but with double the number of petals and ten times the fulness of fragrance. I should almost be inclined to rank the Maréchal Niel Rose under glass as second in sweetness to what I consider the premier Rose for exquisiteness of odour—Devoniensis.

D. T. FISH.

BRIDGES IN GARDENS.

OUR OWN opinion is that no bridge should ever be made in a garden where it can possibly be avoided. But everybody knows that puerile pretexts are sought for to justify the making of bridges where they are never wanted. If we lived in a sahara where a real bridge was unseen there would be more excuse than at present for bridge puerilities. However, there are cases where they are really needed in gardens, and this being so their construction in a not too intrusive manner, and their embellishment or even partial concealment where

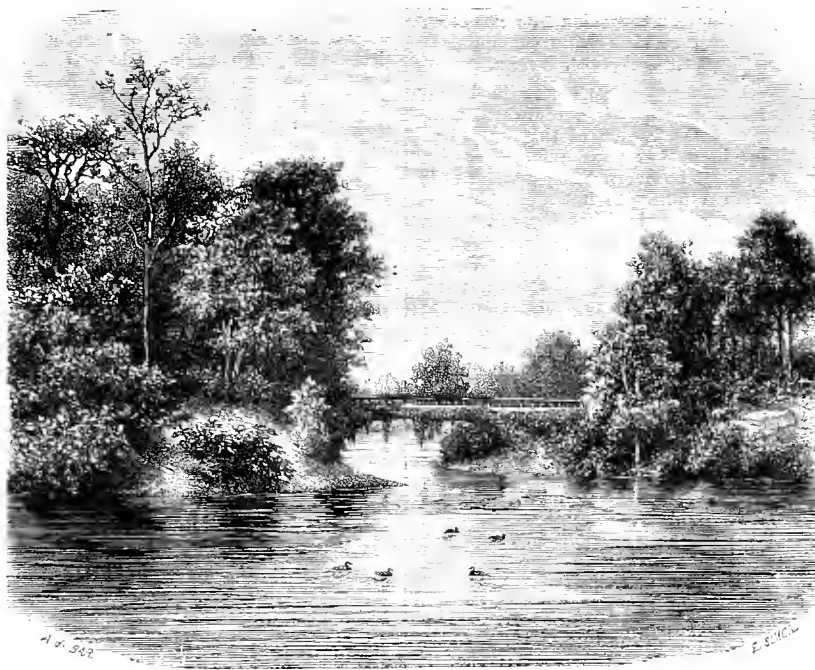
required are of some importance to those interested in garden design. For this reason we give an illustration of a picturesque bridge connecting two islands in a large artificial lake. Here the appropriate planting of the banks and the picturesque drapery of the bridge are noticeable. We are bound to add, however, that it is one of the positions where a bridge was unnecessary, except for the pleasure of making one.

CULTURE OF NEAPOLITAN VIOLETS.

FOR small bouquets this Violet is unsurpassed by any other variety, and, although it may be had in flower all through the winter and spring, yet near London market gardeners even do not pay much attention to it, although they grow other kinds by the acre. Single crown runners of it may now be obtained from old plants in abundance; they should be cut off, and pricked out 1 ft. apart into a half-shady border, in good rich soil, keeping them well watered during dry weather, and the ground between the rows clear of weeds by means of the frequent use of the hoe. Towards the middle of the summer

a little manure-water may be given them with advantage, but it would be better still to mulch with thoroughly decayed stable manure, free from worms. All young runners should be kept picked off as fast as they appear, and in the middle of September, after being well watered, the plants should be lifted with as good balls as possible, and either potted or planted out in a frame previously prepared for them, allowing a space of 3 in. or 4 in. between each plant. The pit or frame should have been filled with fresh stable-manure, or, if at hand, Oak leaves are best, inasmuch as they retain a steady temperature for a longer period than other fermenting material. A foot thick

of sandy loam and leaf-soil should be placed on the bed in which to set the plants, and after planting a good watering may be given and the lights closed and shaded for a few days until root-action has again commenced, after which abundance of air must be given night and day on every favourable opportunity. Little or no water will be necessary, but if the soil get very dry, the lights should be taken off early in the morning of some fine day, and the water applied in sufficient quantity to soak the whole of the soil, and the plants should be left exposed to sun and air until the foliage has become thoroughly dry. The plants in pots should occupy a similar position to those planted out until they show bloom, when, if they be moved to a light, airy shelf near the glass in a cool house, their flowers will open freely. Damp is the greatest enemy which the Neapolitan Violet has when in flower, therefore it is obvious that whilst the roots should be abundantly supplied with water, the foliage should be afforded as much air as possible to insure its being kept perfectly dry. Red spider often attacks the leaves of Violets during the summer when planted out, and for this there is no remedy equal to that of planting in rich soil in order to keep the plants growing vigorously. When coming into bloom, weak manure-water, in which has been put a little soot, may



Bridge connecting Two Islands.

be advantageously applied at every alternate watering. If the flowers, when picked, be required to travel any great distance, it is best to place them loosely in a small box lined with Ivy leaves, for if tied in bunches, as they often are, they do not last in good condition nearly so long as when placed loosely in the box. C. S.

Yellow Gladiolus (*G. angustus*).—My bulbs of this lovely and early flowering plant came to me direct from the Cape, and therefore in my anxiety to preserve them for some years I kept them in the greenhouse, but they were never satisfactory, being attacked with red spider and green fly: I then tried them in a box frame, but they grew too tall, and their foliage and blooms were damaged, and besides they evidently did not like the confinement of pots. Last summer I turned them all out into the border, and now I have some dozens of spikes of their lovely primrose-coloured blooms, and if cut before expansion, their buds gradually open in water, or better still in wet sand. Another thing, last Friday morning when I went down my garden, all the Tulips, Fritillarias, Scillas, and others were prostrate, but this Gladiolus was unscathed and as upright as ever. If I remember correctly, I once saw the same plant in a stand of hardy flowers at the Crystal Palace from Messrs. Ware's under the name of *G. flavus*. There are two other plants which I do not often see, but which are well worth growing, viz., *Scilla campanulata alba* and *S. nutans alba*.—JOHN E. DANIEL, *Terrace, Epsom*.

Choice Hardy Plants.—A few plants just now in bloom deserve notice because they are rarely met with in gardens. Among them may be mentioned *Viola montana*, the gem of this large and varied family. It is lovely either in pots or pans, and as it is of a comparatively meagre habit it must not be overpotted; a plant of it with two crowns now in flower in a 5-in. pot has a considerable number of its pretty mauve blooms expanded; these issue from the centre of a mass of small, finely-cut leaves, the shape of which gives to the plant the common designation of the Bird's-claw Violet. Half-a-dozen such plants in a 10-in. pan neatly mossed could not fail to elicit the admiration of everybody. *Myosotis rpicola* is another of these Alpine gems that fairly enchant those who are fond of hardy plants. It is herbaceous, that is, it loses its foliage in winter, and sends up renewed growth in the spring; under glass it begins to flower in the middle of May; the blooms, which are small and of a rich blue, are borne in short sprays. Altogether when in full flower this plant does not exceed 6 in. in height; a pan of it is well worth attention. In *Veronica repens* we have an exceedingly close-growing rock plant, that opens its pretty little flowers about the beginning of May. It is, if possible, dwarfer in habit than the dwarfest of *Sedums*, and, as it spreads, covers the soil with a dense growth; the flowers resemble those of the *Nemophila* in shape, but are much smaller, and pure white speckled with lavender. This, if grown in a cool house, should be in a pan, but it is so hardy that it is well suited for outdoor rockwork. *Iberis jucuuda* is probably the most fragile of all the family to which it belongs; although it is quite hardy, it seems best suited for pot culture, as its growth is small and the foliage minute; the flowers are of a deep rosy-pink, an unusual tint among *Iberises*. A pretty companion for these small plants is found in the Butterwort, of which there are several varieties, but perhaps the large-flowered Irish kind is the best. This is also a good plant for a pan, and if kept in a moist and shaded place it will thrive remarkably well, and produce an abundance of blooms. It propagates itself freely by means of side crowns, and these, if carefully pricked out in the autumn, soon grow into blooming plants, and succeed best in a cool house or frame.—A. D.

Romneya Coulteri.—This singular Californian Poppywort is found on the borders of streams near San Diego, and is a strong-growing, much-branching plant, with lobed, glaucous foliage. The flowers are large, nearly equalling in size those of the White Water Lily; the colour is pure white, the stamens very numerous, and the anthers golden yellow. This Poppy must be a showy plant in its own country, as it is apparently very floriferous; but it is doubtful if it will be so valuable here, where the summer-heat is not sufficiently powerful for perfecting its growth and fully developing its flowers before our early autumn frosts overtake it. A plant of it which bloomed in the open border at Glasnevin, in October, 1876, was about 4 ft. high, and 3 ft. through, with numerous lateral shoots, each of which, as well as the terminal branches, bore a flower-bud at the point: Dr. Moore received it in March of that year, and it was then, I believe, a mere cutting. Mr. Thompson, of Ipswich, with whom it bloomed in September last, thus describes the cultural treatment which his plants of it received:—"They were raised from seed during the summer, and were kept in a cool house in winter, though they are capable of resisting a few degrees of frost in dry soil.

Under glass the plant is almost, if not quite, an evergreen, and when turned out in the open border in May, the stems soon reached a height of 2½ ft. to 3 ft., producing a single flower at the summit of each, which developed somewhat slowly, and expanded about the middle of July. The petals, six in number, arranged in two series, are of the purest white, broadly fan-like in form and slightly fragrant, the flowers being quite 4 in. across, and continuing expanded throughout the day. Notwithstanding the heat of the weather, they remained open from three to four days, proving that they are somewhat less fugacious than many plants of the same Order. This *Romneya* is a true perennial, and may doubtless be easily preserved from year to year in a cold frame. I do not think it can be successfully treated as a perfectly hardy perennial." This plant was first described, and the genus founded, by the late Dr. Harvey, of Dublin.—B.

Effects of the Frost on Lilies and other Border Plants.—Some of your readers may like to compare notes as to the damage done by the late severe frosts to Lilies growing out-of-doors. The meteorological authority of our district has given me the exact temperatures as follows:—On May 3, the thermometer at 4 ft. from the ground, fully exposed, descended to 25°, and a radiation thermometer on the grass to 21·75; on the 4th, the corresponding readings were 23·5 and 19·75. In the open border unprotected *L. californicum*, *Humboldti*, *Martagon*, *dalmaticum*, *Szovitsianum*, *Browni*, *pyrenaicum*, *chalconicum*, *tigrinum*, and *umbellatum* appear to be unharmed; out of very many *L. auratum*, a few seem a little touched, but though I longed for the white parsons with which my friend and neighbour Mr. McIntosh shelters his favourites, the great majority seem to be all right; some of them are from 2 ft. to 3 ft. high: I measured one stem 2½ in. in circumference at the base; the outside leaves of *L. giganteum* are cut badly, but in the case of one, measuring 1 ft. 10 in. in height, and 6½ in. in circumference at the base of the stem, though the side leaves are cut, the stem and inner leaves appear to be untouched. Among border plants in bloom I noticed *Anemone cortusoides amœna* a good deal cut, while *A. palmata* and *A. Pulsatilla* are untouched; the more forward buds of *Azalea mollis* and *Dicentra spectabilis* are cut; *Colchicum speciosum* in bud and *Alpine Auriculas* are unharmed; *Trilliums* in the shade are likewise uninjured; *Astilbe japonica* is considerably hurt; a large clump of *Cypripedium spectabile* had some shoots browned; *Adonis vernalis*, with its glorious yellow flower, is in full beauty; on the raft *Lobelia cardinalis* and *Cypripedium spectabile* are apparently untouched.—GEORGE F. WILSON, *Heatherbank, Weybridge Heath*.

Primula cortusoides amœna alba.—I find this *Primula* to be one of the easiest to cultivate; it succeeds well with me under the same conditions as *P. c. amœna*. I grow both in pots, large or small according to the size of the plants, in a mixture consisting of two-thirds rich loam and equal quantities of well-rotted manure and leaf mould, adding a small portion of sand. I pot them immediately after they have flowered and place them on a bed of ashes, giving plenty of water. They are greatly assisted by being fed during their growing and flowering seasons with a little weak liquid manure. I winter them in a cold frame, giving them abundance of air except during severe frost, and under this treatment I get both good foliage and flowers. I should say that Mr. Harris's variety (see p. 329) is not the true *P. c. amœna alba*, but *P. c. amœna alba viridis striata*, a kind which has a very small flower, and is scarcely worth growing. The true kind has flowers equal in size and strength to those of *P. c. amœna*; they are pure white, and when produced by established, well-grown plants, equally abundant. I should recommend Mr. Harris to grow the true variety, which is known in the trade as *P. cortusoides amœna grandiflora alba*, a very charming plant; *P. c. lilacina* and *hybrida* are also varieties well worth growing.—E. JENKINS, *Sydenham Hill*.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

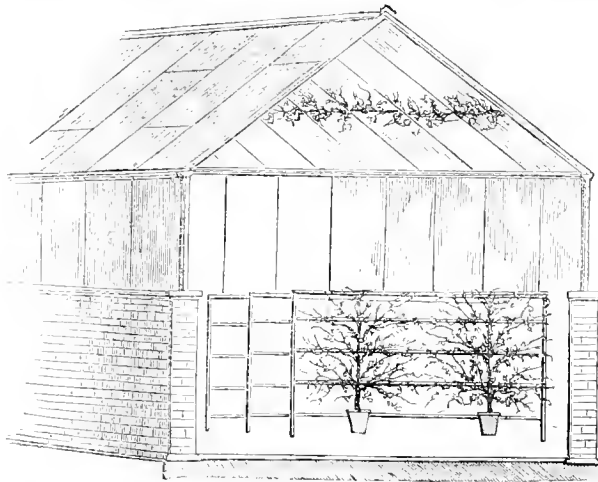
Viola Sir Walter Scott.—I saw this new *Viola* shortly after it had been raised and just when it was coming into blossom, and I have never seen a more effective purple flower of any kind for bedding purposes than it is. Each blossom is about the size of a five shilling piece, and so crowded that hardly any of the foliage can be seen.—A. NORRIS, *Glasnevin*.

Erica mediterranea.—We have several bushes of this hardy, spring-blooming Heath now in full bloom, and it well deserves more attention than it receives on account of its quick growth and ornamental character when in blossom. It will succeed in the most exposed situations, and with us it has attained a height and width of 6 ft. The flowers, which are bright lilac, are about as sweetly-scented as those of a Hawthorn.—J. M.

Sedum acre elegans for Border Edgings.—This is the best plant that can possibly be used as an edging for shrubbery borders, or such as are occupied by hardy herbaceous plants. Even in situations where Grass will not grow this *Sedum* will succeed, and in addition to its having a light and lively appearance, a band of it some 6 in. in width when well established will prevent the soil from the borders being washed into the walks almost as effectually as tiles, and certainly better than Box.—C. S.

MESSRS. HAYES' GARDEN AT EDMONTON.

In places where plants and fruits are wholly grown for market, the rule is to make them produce as much as possible without much attention being paid to appearances: for in many cases clean walks, neat hedges, and other items calculated to add to the attractiveness and enjoyment of the place, are only secondary considerations, and often thought unprofitable. There are, however, a few establishments near London that form an exception to this rule, and perhaps a better example of what a market garden should be could not be found than that of Messrs. Hayes, of Edmonton. Here are many acres of land devoted to the culture of hardy fruit, flower, and vegetable crops, all of which appear to thrive in the most satisfactory manner. The indoor department, however, forms the most important feature, and to it is devoted much care and attention. The glass structures consist of about thirty houses of medium dimensions—from 40 ft. to 50 ft. long, and 15 ft. to 20 ft. wide—mostly span-roofed, as well as a large number of span and lean-to pits. Flowering plants suitable for market purposes occupy the whole of the glass structures, no fruit being grown indoors, except a few Vines, which have been planted for a number of years, and which are here and there to be found in the oldest of the houses. These are, however, allowed to remain more for convenience than for profit, but they serve to illustrate the value of the extension



A Tea Rose House at Edmonton.

system. Tea and Fairy Roses occupy a prominent position in this place, and Hybrid Perpetual Roses are also grown to some extent. The Tea Roses are chiefly planted out, the plants themselves being trained in lines under the roof in such a manner as to obstruct as little light as possible from other kinds of plants which are grown underneath them. One span-roofed house, however, is entirely devoted to Tea Roses. The plants are mostly grown in large pots and trained up a series of wooden trellises, about 6 ft. or 8 ft. in height and from 3 ft. to 4 ft. apart, as represented in the annexed engraving. A path runs along one side of the house, so that the blooms are easily gathered. By this means the whole of the space is utilized most profitably, and the plants receive abundance of light and sunshine on all sides. A few fine examples of *Maréchal Niel* and *Gloire de Dijon* may also be seen here planted out in some of the houses, the branches being trained as before stated in lines along the roof. Several plants thus circumstanced, and which had been planted only two years, had made over 35 ft. of growth each, some of the shoots being as thick as a good-sized walking-stick, and bearing hundreds of blooms. Of Fairy Roses, about 10,000 are grown yearly; the plants are struck from small pieces of the young tops inserted in sandy soil in May and June, and by the following spring they form little bushes loaded with buds and rosy-coloured blossoms. Such plants as these find a ready sale in the markets, numbers of them being cut up and used in bouquet-making. During the time in which the plants are coming into bloom, they are arranged on stair-like stages,

receive abundance of air and water, and are frequently fumigated to keep down insects. They are grown in 6-in. pots; many thousands of them can therefore be placed in a medium-sized house, and when in bloom they have an interesting appearance. Heliotropes are grown here expressly for furnishing cut blooms. The plants were formerly in large pots, but when it became necessary to give them more pot room, they were so large that the operation became a difficult one. The pots which they occupied were therefore broken up, and the balls containing the roots were covered round with soil; therefore they are practically planted out. In this position they have been for about twenty-five years, and they now form a dense bank from 8 ft. to 10 ft. high and from 9 ft. to 10 ft. wide, and from 40 ft. to 50 ft. in length. From these plants abundance of blooms can be cut at all seasons, and during the winter months they are especially valuable, all the attention required being a little water during very dry weather, and removing decayed leaves. The blooms are cut in large quantities, several times a week, all the year round. Another house is filled with Maiden-hair Fern, grown in large pots, to furnish a supply of fronds in a cut state. Pelargoniums are well grown in this establishment, both for sale in the shape of plants and for furnishing cut bloom, for which Gauntlet is the principal kind grown. A dark variety named Bonnie Charlie is also used for the same purpose. Its habit of growth is not particularly good, but its flowers are of a rich dark velvety-crimson, and old plants, when kept liberally supplied with water, grow and flower freely the whole year round. Beauty of Edmonton is also an excellent kind, the flowers having a fringed edge similar to those of the well-known Dr. Andry; they are brilliant crimson in colour, and are more conspicuous than those of any other variety with which I am acquainted. Pelargoniums for sale in pots are grown without any fire-heat whatever, except during very severe weather. Abundance of light, air, and water is given them, but they receive little in the way of stimulating manures. The foliage, nevertheless, is large and beautifully green, and almost completely conceals the pots, and the flowers being produced without forcing last for a much longer time than those produced on plants that have been subjected to fire-heat and stimulating manures.

Fuchsias are extensively grown, the principal batch coming into flower early in April, when they are most valuable in the market. The plants are struck in autumn for spring blooming, and in spring for the summer and autumn supply. The cuttings are inserted thickly in 6-in. pots, and when well rooted are shifted singly into 3-in. pots. When again established, the shoots are cut back so as to induce the plants to grow bushy, and when the pots which they occupy are filled with roots they receive their final shift into 5-in. or 6-in. ones. Each plant is supported by a central stake, to which the branches, when in bloom, are tied in such a manner as to form a perfect but by no means a formal pyramid. Mrs. Marshall is the chief light-coloured kind grown, the dark-coloured varieties being *Arabella*, *Wave of Life*, *Catherine Hayes*, and several other good free-blooming sorts. Gardenias for cut blooms are grown in 10-in. and 12-in. pots. They are allowed to grow from 3 ft. to 4 ft. high and from 2 ft. to 3 ft. through at the base, and in April, when I saw them, they were loaded with buds and blossoms. Mr. Hayes prefers growing them in pots, on account of their being more easily cleared of insects than when planted out permanently, and, moreover, they can be moved from place to place whenever it happens to be necessary to do so. Hydrangeas are also extensively grown here; they consist chiefly of bushy plants with several shoots, each of which bears a large head of pink blossoms. They are struck from cuttings put in in spring, and are grown on in frames during summer, and when in bloom a large lean-to house with a narrow path along the front and a stage at the back is entirely devoted to them. The stage is erected in the form of stair-like shelves within 2 ft. of the glass, on which the plants are arranged, and to see the hundreds of large heads—some of which measure from 15 in. to 18 in. in diameter—is, indeed, an attractive sight. In another nursery, also belonging to Messrs. Hayes, there are five or six span-roofed houses of very large dimensions, viz., from 120 ft. to 130 ft. long and about 20 ft. wide. All round the sides of these houses

a stage is erected, and large specimens occupy the centre. Here are grown enormous large of Cinerarias, Primulas, Scarlet Pelargoniums, Heaths, Solanums, &c. The Cinerarias are raised from seed sown in the spring, and the young plants are potted on in good, rich loam during the summer, until they occupy 6-in. pots. In autumn they are placed in the houses, and when they come into bloom the best are selected and moved to a low, span-roofed pit for seeding purposes, and the rest are taken to market. Those intended for seed are placed in sections according to their colours, and every possible precaution is taken to prevent cross-fertilization. Abundance of air is admitted whilst the plants are seeding, and they are kept supplied with water at the roots. As fast as the seed ripens it is gathered, and should any fall to the ground (which is covered with ashes), they quickly germinate and furnish a supply of plants for next season's blooming. Primulas, both white and rose-coloured, are grown wholly for the seed which they produce. The plants are raised from seed sown in summer, potted on into 6-in. pots, and arranged on large stages in lean-to houses, the white and rose-coloured kinds being kept in houses at a distance apart from each other. Great attention is paid to watering and ventilating after the plants have formed their seed-pods as well as before, and during very hot sunshine a little shade is afforded them. Solanums are struck from cuttings put in in spring, potted into 3-in. pots, and finally shifted into 6-in. ones, in which they are allowed to fruit. They are subjected to a temperature of from 50° to 60°, have their shoots stopped several times during the spring and summer, receive abundance of air when in bloom, and in autumn and winter they form bushy plants, loaded with bright orange-scarlet berries. Scarlet Pelargoniums are grown extensively, four houses of the above-named dimensions being occupied by them in the spring. They are propagated from cuttings inserted in the autumn, grown on in good sandy loam, and potted into 6-in. pots; the bloom which they produce during winter is cut for market, and in April and May, when the plants are in full flower, they find a ready sale for furnishing vases and for planting out in cases in which immediate effect is desired. The shoots are stopped during the growing season, and when in full bloom in the spring they receive liberal supplies of weak manure-water. Plants for furnishing vases and window-sills are obtained from cuttings inserted in the spring; they have their shoots kept well pinched in, and in the following spring fine plants from 12 in. to 15 in. high, and as much through, loaded with fine spikes of bloom, is the result. The variety grown is Vesuvius, which is dwarf in habit and a good winter-blooming kind.

C. W. S.

The Fruits of Central Asia.—Gardens constitute the beauty of all this land. The long rows of Poplar and Elm trees, the Vineyards, the dark foliage of the Pomegranate over the walls, transport one at once to the plains of Lombardy, or of Southern France. In the early spring the outskirts of the city, and indeed, the whole valley, are one mass of white and pink with the bloom of Almond and Peach, of Cherry and Apple, of Apricot and Plum, which perfume the air for miles around. These gardens are the favourite dwelling-places in summer, and well they may be; nowhere are fruits more abundant, and of some varieties it can be said that nowhere are they better. The Apricots and Nectarines I think it would be impossible to surpass anywhere. These ripen in June, and from that time until winter, fruit and Melons are never lacking. Peaches, though smaller in size, are better in flavour than the best in England; but they are far surpassed by those of Delaware. The big blue Plums of Bokhara are celebrated through the whole of Asia. The Cherries are mostly small and sour. The best Apples come either from Khiva or from Susak, to the north of Turkistan; but the small white Pears of Tashkent are excellent in their way. The Quince, as with us, is cultivated only for jams or marmalades, or for flavonriog soup. Besides Water Melons, there are in common cultivation ten varieties of early Melons and six varieties which ripen later, any of which would be a good addition to our gardens. In that hot climate they are considered particularly wholesome, and form one of the principal articles of food during summer. When a man is warm and thirsty, he thinks nothing of setting down and finishing a couple of them. An acre of land, if properly prepared, would produce in ordinary years from 2000 to 3000, and in very good years twice as many. Of Grapes I noticed thirteen varieties, and most of them remarkably good.—“Turkestan,” by EUGENE SCHUYLER.

WALL GARDENING.

This is a subject which deserves more attention than it has hitherto received. The annexed engraving represents a pendent, floriferous mass of *Aubrietia purpurea*, which may now be seen hanging down the face of a sunny brick wall in High Street, Upper Tooting, a position in which it has been a noticeable object in spring for these last ten or twelve years. This little bit of wall gardening is purely accidental; but when new garden walls are being constructed, how easy it would be to leave little recesses here and there into which soil, seeds, and suitable plants might be introduced. In some cases



Aubrietia purpurea growing on a wall.

even turf walls might be especially constructed for choice, little herbaceous plants and bulbs, many of which would grow much better thereon than when planted in ordinary borders. In many country gardens the crumbling old walls are always attractively clothed with common succulents and hardy flowers such as Wallflowers, Snapdragons, Arabis, or Aubrietias. The last-named plant is admirably suited for draping dry walls; to establish it we need only sow the seed in any mossy or earthy chinks in autumn or spring.—B.

Corn Salad.—This forms an excellent and nutritious salad, little known and little cultivated. Great quantities of it are grown in France and consumed during the winter months. The little daisy-like tufts are cut off near the ground, thrown into water, washed clean, and switched dry in a towel; then they are put in a salad-bowl, with a bit of Tarragon and Chervil chopped up fine. The plant is not cut up, but left entire. Oil and vinegar, pepper and salt, are added of course, and the result is a very excellent dish. Seed of this plant is sown at the end of August. Choose on a wet day a small piece of dug ground, and with the spade smooth the surface over equally. Sow the seed on the surface, and if the weather be likely to be dry, shade with a mat laid on flat, a stick or two being laid across the bed beneath. In a week or so, the little plants will appear in thousands, when the mat may be removed. They are ready for use after the first frost, and are better for frost, which makes them tender and crisp.—“Florist.”

Kew Gardens.—If any man's heart be sore and his eyes heavy, let him forthwith take horse or rail to Kew and live an afternoon in the garden there. If that cure him not, nothing will. Azaleas are in all their glory, and Camellias are bursting from their buds. A walk through No. 4 house is a kind of mild intoxication unattended by headache; the air is full of a hundred delicate scents, and I can testify to an instantaneous cure of heavy eyes effected by one plant of *Erica Cavendishiana* in this house. A lady, on her first visit to England, was walking in Kew Gardens the other day; she was, on the whole, much pleased, but was greatly shocked at the notice which she read at every turn, that “birds'-nesting is strictly forbidden.” “How you are severe and cruel in this country,” she at last sorrowfully exclaimed, “that even the little birds may not make their nests in your public gardens.”—“Vanity Fair.”

CYCLAMEN-FLOWERED NARCISSI.

Those kinds of Narcissi that are distinguished by their graceful habit and reflexed petals are so delicately beautiful, and at the same time so distinct from their congeners, that it is a matter to be regretted that they are so rarely met with in even our best collections of hardy plants. The reflexed Narcissi are represented by *N. calathinus* and *N. triandrus*, and of both there are more or less distinct forms, but all readily referrible to one or other of these types. We recently gave a description of *N. calathinus* in THE GARDEN (see p. 262) from fresh specimens kindly sent to us from the Naval Hospital Gardens, at Brest, by M. Blanchard. We now furnish an engraving of two forms of *N. triandrus* contrasted with the creamy-white or French form of *N. calathinus*, from which it will be seen that size of flower and length of the cup or corona afford the main points of distinction between them. Fig. 1 in our illustration represents a two-flowered scape of *N. triandrus pulchellus*, which is by far the most common form of this species as seen in gardens; it has yellow petals, and a creamy-white rounded cup. When well-grown this is a lovely plant, and a large bed of it is now most profusely in bloom in Mr. R. Parker's nursery at Tooting, some of the scapes bearing from six to eight finely developed flowers. Fig. 2 represents the creamy-white form of *N. calathinus*, which is by far the largest and most distinct plant in the group to which it belongs, and never appears to have been successfully grown in English gardens. Fig. 3 is a solitary-flowered Portuguese form of *N. triandrus*, but in its elongated cup and creamy-white colour it more nearly approaches *N. calathinus* than does any other form of *N. triandrus* which I have yet seen, and it agrees with the last-named in being less vigorous in our northern climate. As a garden plant *N. triandrus pulchellus* is the finest in this group, but *N. calathinus* and the other forms of *N. triandrus* are so delicately beautiful as to be well worthy of careful pot culture. In many warm sheltered parts of England, however, especially near the southern coast, plants of *N. calathinus* possibly might be grown successfully in raised, well-drained beds of light, rich, sandy soil in the open air. In the Garden of Plants in Paris I have recently seen this delicate species flowering most abundantly in 5-in. pots filled with light sandy compost. B.

THE FRUIT GARDEN.

BLISTERED PEACH AND NECTARINE LEAVES.

OWING to the cold, unpropitious weather that has prevailed for a long time past, and more particularly during the latter part of April and early in the present month, Peach and

Nectarine leaves have suffered a severe check, the effect of which is now showing itself in the crippled state of many of the trees. Instead of the leaves unfolding and the shoots elongating, as they should, the points thicken and swell into warty-looking excrescences that have a singular appearance. Many of the leaves also are blistered to a serious extent, and instead of warm weather rectifying matters, it appears to bring on a more rapid enlargement of the damaged parts. As most districts have been visited by cold cutting winds, and few trees have escaped injury, many Peach growers may be in a dilemma as to what course to pursue to get them right again. The best thing is to examine them at once and pick off every deformed leaf. Such excrescences and malformations of leaves appear to have almost as debilitating an effect on the Peach as tumours have on the bodies of animals, as both are fed and kept growing at the expense of the animal or tree afflicted with them. No half measures, therefore, are of any avail, and it is useless expecting a healthy, satisfactory growth so long as these blistered leaves remain on, diverting the course of the sap and taking the greater proportion of it to themselves, as is shown by the rapid manner they enlarge, and how little progress the young shoots make while the tree has them to support. It is generally supposed that frosts are the cause of Peaches and Nectar-



Cyclamen-flowered Narcissi.

ines getting into their present unsatisfactory condition, and no doubt they have much to do with it; but that cannot have been the case this season, as they were not forward enough when frost occurred of sufficient severity to reach anything sheltered against the face of a warm wall. Sudden transitions from heat to cold are just as likely to produce it, as the tender tissues are unable to endure such rapid changes as those to which the leaves have been subjected through sudden peeps of sunshine alternately with cold winds raising or depressing the temperature against a wall as

much as 30° or 40° in the space of a few minutes. It is, therefore, not surprising that such delicate leaves as those of the Peach and Nectarine have suffered in the way they have, or that green fly should be more than usually troublesome, a fact to be attributed to the slow growth the trees have made this season, of which these pests are sure to take advantage. If it be desired to save the lives of the trees and to have a crop of fruit next year, no pains must be spared to keep them clean and healthy now, as so much depends on the kind of growth they make during the next month or so, for, should this not be clean and healthy, it is impossible for the fruit-buds to become fully developed or the young wood to attain that degree of solidity and ripeness to carry it safely through the winter and lead to successful results.

It is therefore highly important that they should be kept clear from aphides, and to rid them of these there is nothing so safe and effectual as Tobacco-water; and the best way of obtaining this is to soak some common Tobacco in boiling water and then strain it through a fine sieve or coarse cloth that it may readily pass through the tube of a syringe. Insecticides containing much alkali, as most of them do, may be very well for certain purposes, but highly dangerous if applied to Peaches and Nectarines at this early fruiting stage, as they damage the tender skin, especially of the former, the downy covering of which gets so coated over as to stop their swelling. If used at all on the above, it should be only at the rate of an ounce or so to a gallon of Tobacco water, the latter of which may then be weaker than would be effectual were the Gisburst or some other kind of insecticide not added. With any of these used in the before-named proportion, 1 lb. of common strong Tobacco will be sufficient to make 12 gallons, which, if applied at a temperature of 80° or 90°, will be much more effectual than when used cold, as the heat adds greatly to its penetrating powers on the skins of the insects, which soon succumb under its influence. The evening of a warm day is the best time for applying it, as then there is no risk of injury from the sun, and it can be allowed to remain on all night to take effect, when the following morning a good washing from a garden engine will dislodge the survivors, and wash off excreta or other deposit the flies or mixture may have left. Indeed, where it can possibly be done, the trees should be syringed once daily whenever the weather is warm and dry from this time till the fruit is ripe and again after, by which means the leaves may be kept perfectly healthy and free from red spider, provided the trees are not allowed to suffer from want of water while carrying a crop. To prevent this, it is advisable at this time to give a good mulching of half-decomposed manure now that there is plenty of moisture in the soil, and thus intercept its escape by evaporation, which process, now that the sun begins to be powerful, goes on at a rapid rate. It should be borne in mind that trees planted against high walls having a southern aspect are not at any time so well circumstanced as regards rainfall as others in less sheltered positions, and with sharp sloping borders firmly trodden, much of the wet that falls during the autumn and winter runs off the surface before it can penetrate. This and the practice of cropping borders are frequent causes of Peach and Nectarine trees being in the unsatisfactory state we frequently see them, for if they lack moisture at the roots at any time they are sure to get out of health. Bud-dropping, red spider, and mildew are the evils that follow, all of which may be prevented by timely attention from now till the leaves fall.

S. D.

COVERING EARLY VINE BORDERS.

MR. SIMPSON asserts that a Vine border, covered early in autumn with non-conducting material, will decline to 50° before Christmas. There is no rule by which this can be properly determined; the character of both surface and sub-soil so far influences the decline of heat that I have found it to vary as much as 7° at the close of the year in different localities. Mr. Simpson mentions instances in which the material laid on merely with the intention of preventing loss of heat had fermented; where this occurred to an appreciable extent, so as to have any influence in heating the border, the operator can have had but little knowledge of the nature and management of protecting materials. Your correspondent is doubtless aware of the determined disposition which heat has to ascend. The fermenting matter is required to get to a higher temperature—and to continue at such to

warm the soil in a way to influence root-action—than would be supposed, as I can affirm by examining and testing the temperature of borders thus covered during winter. As a counterpoise to this view I have very often seen the customary bed of leaves laid on the border in autumn under the impression that the roots were moved thereby, but upon being examined it was found to have never been warm enough to have exerted any influence. Your correspondent says I recommend very different treatment for Vines from that which I advise for plants, and would be glad to know why I make the distinction. So far as the use of heat in this way to the roots goes, I decidedly make no distinction. I have long ceased to use or to recommend the use of bottom-heat to any but a very few species of plants. Surely Mr. Simpson would not treat the Vine, which will live out-of-doors in this country, in respect to heat as he would plants from the hottest part of the world that cannot live without heat. What he says would imply this, and yet to most people the statement will appear somewhat startling. There is no greater mistake committed in gardening than generalising too far and acting on the assumption that because plants of a certain character require such and such treatment, others must do the same. Volumes have been written upon the absolute necessity, in order to insure success, of having the roots in simultaneous action with top growth, both as regards Vines and all other plants subjected to artificial heat. It is an extremely plausible proposition, and those who advocate such doctrine are continually quoting Nature in support of their views, forgetting that with a very great number of plants, especially such as are deciduous, a large amount of top-growth takes place long before the root begins to move. The bottom-heat question in reference to plants in general is a wide one, and, in respect to it, a good deal that has been advanced continuously from time out of mind is taken without question as conclusive. In gardening matters we are all very much disposed to run in the old groove, to keep on doing as we have hitherto done, and as our monitors have taught us. I am, however, ready to admit that in the cultivation of fruit-bearing, as well as flowering and other plants grown for the various purposes of decoration, in the majority of cases the best and most approved methods of cultivation are proved and established beyond question; but in some things it is not so, and this matter of bottom-heat is one. Some eighteen years ago I commenced a series of experiments with a large number of the plants that are usually found in collections requiring artificial heat in which to grow them, and the result is that for the last twelve years I have not used a particle of bottom-heat to any except bulbs for forcing, Oranges, and a very few others, although always having in the houses devoted to stove plants a good body of fermenting matter. I gave up its use, because I found that far the greater number of plants could be grown much better without it.

T. BAINES.

FIG CULTIVATION AT SMYRNA.

THE United States Consul at Smyrna furnishes to an American paper the following account of Fig culture in Asia Minor, for which he is indebted to Mr. Augustus O. Clark, an intelligent Englishman, who settled many years ago in the Aidin district, where he engaged in the manufacture of liquorice paste, and subsequently became a large owner of Fig orchards. The Aidin district, Mr. Clark states, is the only one which produces Figs for exportation. The fruit will grow anywhere in the neighbourhood of Smyrna of a quality for consumption in a green state; but the Aidin plain is unique in its climate and soil as being favourable for the proper curing of the Fig. The thermometer seldom falls below 3° or 4° under the freezing point, and in the summer seldom rises above 130° Fahr. in the sun. In Aidin the winters are generally wet, the dry weather commencing in May and continuing to the end of October. Any rain at the end of July or during the months of August and September, when the fruit is under the process of drying, injures its quality by causing it to burst, hardens the skin, gives the Fig a dark colour, and spoils its keeping quality. Heavy dews will cause the same evils. What is required during the time the fruit is coming to maturity are fine weather and dry winds. The Fig tree grows in almost any soil; it grows very luxuriantly, however, in a rich, heavy soil; but to produce Figs that will dry well and please the merchant, the soil ought to be of a good depth, and of a rich, light, sandy nature; this latter, if the weather be favourable, will produce large Figs of a white thin skin, and of the finest quality. Before planting, the ground ought to be well ploughed two or three times to a good depth, well pulverized, and free from all weeds and extraneous roots.

The Fig is propagated by means of slips, selected with as many fruit-buds as possible. To form a tree two slips are planted, 1 ft. apart, and then joined at the top. The trees, if planted in rich soil, should be placed about 30 ft. apart, and for poor soil about 25 ft. distant from one another. The cuttings should be planted in the

month of March—two in each hole—at about 9 in. or 12 in. apart; then gradually bring the tops to meet, just crossing them, thus, X; then tread in the earth well. The cuttings must be full of buds or eyes, and when about to plant them cut the root end off at the first knot, care being taken not to leave any of the pulp in sight, as it will then be liable to be attacked by worms, which will make the tree hollow and sickly. The cuttings should be put into the ground to within 1 in. or 2 in. of the top, after which the process of crossing must take place. The ground must be well trodden in to within 1 in. or 2 in. of the top, then cover the remainder over with loose earth, which will protect the ends from the heat of the sun. When the trees reach about the height of a man, nip or cut off the tops to one uniform height, and this will cause them to branch out. During the growth of the trees, the ground ought to be ploughed up two or three times during the winter or spring, and the space between them may be used for Broom, Sesame, or Indian Corn. When the trees are large, the same system of ploughing and loosening the earth around them ought to be continued. To make a Fig tree grow well, the ploughing is very essential. If this be not attended to, the fruit will be small and in every respect inferior. The first year of planting, the cuttings ought to be watered during the summer months.

The male fruit, about the middle of June, contains a large number of small flies, and is thrown on the female tree; these flies then get distributed over the fruit and convey the necessary amount of pollen. The system is as follows:—When the female Fig (first crop) is about the size of a Hazel-nut, five or six of the male Figs are strung on to a piece of string, and one or two of these branches are thrown upon the female tree, according to its size and amount of fruit. This operation is repeated when the second crop is about the same size. As the tree grows larger year by year, the number of strings is increased; but more than six strings (say about thirty male Figs) are never put over the largest tree at one time. These strings are put on the tree about one hour before sunrise, and care must be taken that the weather is fine and no wind blowing. I may mention that, if the male Fig be not applied, the crop will not set, but the fruit will fall off; and if too many be applied, the fruit will likewise fall or become very small or inferior.

About the end of July the first Figs come to maturity. The Fig harvest lasts about six weeks. When the Fig is ripe, it will of its own accord fall from the tree, only partly cured. Women and children are employed to pick up the fruit into small baskets, to be conveyed to a place in the garden well exposed to the sun, where they are spread on a bed of dry Grass or matting, singly, and are turned every day, so as to get every side of the Fig exposed to the sun. After a few days of exposure those Figs which are considered sufficiently dry are selected from the mass and divided into first, second, and third qualities. Care must be taken not to dry them too much. When properly cured the skin ought to feel dry, but the inside soft. The grower then sends the Figs to Smyrna, where they are re-sorted and packed for shipment.

FRUIT TREES IN POTS *v.* TREES ON TRELLISES.

My orchard-house has this past week (ending May 5) been a source of unmixed gratification. The terrible east wind, bringing the "envions sweeping frost" in its wake, has destroyed without pity or remorse the budding hopes which I had encouraged of a brilliant crop of fruit out-of-doors—Pears, Plums, Cherries, and Apples; these last, at present undeveloped, are in a woful plight; Peaches, Nectarines, and Apricots are starved with the cold. But, in the orchard-house all this is changed; my trees set with fruit are flourishing and healthy; the tender green shoots have bidden defiance to the cold, and the house, now in its twenty-seventh year, is full of promise, with an abundant crop of fruit of the size of Hazel-nuts, a result which amply repays the original cost of the house and the annual cost of the labour. In order to test all systems, I have within the last few years grown several Peach trees on trellises under glass in the ordinary method: these trees are remarkably healthy and vigorous, and I may, without conceit, say that they are fairly trained; they were covered with bloom, and gave splendid promise of fruit, and I hoped this year that I could at all events arrive at some definite conclusion as to the profitable results of the two systems, but to my astonishment many of the trellis trees have shed their blossoms without fructification; a fair quantity of fruit remains, but not enough. Now the untrained trees in pots and the untrained standards planted out are thickly studded with fruit: it is difficult to account for this great difference. The soil here being very favourable for the cultivation of the Peach and its congeners, I have never until this season been able to realise the difficulties which undoubtedly exist in some

localities. I shall be glad to know if trained Peaches on trellises be generally well furnished with fruit. I have noticed a great scarcity of bees, which in most years frequent my houses in multitudes.

T. F. R.

THINNING PEACH CROPS.

When a Peach tree sets its fruit thickly, the first thinning should be proceeded with as soon as the fruit is fairly set. Do not delay this work till the fruit is stoned, as some recommend, on the plea that the tree is sure to cast a portion of its fruit of its own accord at that critical period, forgetting that exhaustion is the chief cause of a tree dropping its fruit, and that the heavier it is cropped previous to the stoning period, the more likely is it to suffer. It is rarely that a Peach tree casts any quantity of its fruit when thinly set. This I have remarked over and over again, and also noticed that the fruit in such cases was always finer, as might be expected. But a healthy, good-conditioned tree usually sets an enormous quantity of fruit, frequently fifty times more than it can bring to maturity. We hear of extraordinarily abundant sets this spring under glass. In such cases, thinning becomes imperative as soon as the petals of the flowers drop. At this stage the operator cannot tell the good from the bad fruit, or detect the imperfectly fertilised; but he may nevertheless run along the shoots and reduce the clusters of twos and threes to one fruit, disbudding and pinching the young shoots at the same time, and always contriving to leave the foliage beside the fruit or near it. A week or ten days later—or longer when the trees are in cold houses or out-of-doors—he will be able to see what fruit is going to swell; for, though the imperfect fruit remains for some time, and draws nourishment from the tree, it does not increase in size, and it should be rubbed off forthwith and without hesitation, as it will never come to anything. Frequently, when the weather has been dull and unfavourable at the setting period, a large percentage of the fruit is imperfect and of this description. At the same time that this is cleared away, the healthy fruit should also be thinned out to 1 in. or 2 in. asunder, or more if there be plenty of it; and then thinning may be stayed till the fruit is about the size of small Beans or green Gooseberries, when it should be thinned a third time, leaving the fruit about 4 in. apart all over the tree; after stoning they may again, and for the last time, be reduced to 9 in. or 12 in. apart, according to the vigour of the tree. The amount of space allotted to each Peach is commonly reckoned to be about 1 square foot, and no doubt when fine large fruit is desired, this is not too much; but it is more than is usually allowed, and more than is necessary in an ordinary way. I have for years had magnificent Victoria Nectarines from a not very old tree that has always been cropped at the rate of one fruit to every 6 in., as near as could be averaged; but the Victoria is a vigorous grower, and can carry a heavier crop than most other varieties of the Nectarine. On ordinarily vigorous trees, 9 in. will, however, be sufficient for general cropping, and at this rate the fruit ought to be of fair size, but not extremely large. Still, moderate-sized fruit, in abundance and well finished, is preferred for dessert purposes to a scanty supply of large fruit, though the last is undoubtedly the test of high culture. After the thinning has been done, and the trees have been disbudded for the last time, the leaves and shoots should be put aside or pinched wherever there is a fruit, in order to let the light and air play all round it. Shaded fruit is never either so large or so well flavoured as that which has been well exposed from the first. If, however, the shoots be trained thin enough to allow the sun's rays to penetrate freely to the border below or to the wall behind, accordingly as the trees may be placed, the fruit will generally have enough light. In conclusion, it may just be stated that the directions here given apply also to the Apricot and Plum, and all other stone fruits.

CHEF.

Effects of Frosty Nights on Fruit Trees, &c.—It is greatly to be feared that the frost on the night of May 3 may have proved disastrous to the fruit crops in this neighbourhood. The thermometer in the morning on that occasion indicated 9° of frost (23°), and since then the weather has been cold, the wind being in the north-east and snowflakes occasionally falling. Apricots as large as marbles are blackened and destroyed, only those fruits which happen to have been placed between a branch and the face of the wall appear to have escaped. Pear, Plum, and Gooseberry blossoms are exceedingly abundant, but they are just in the state most susceptible of injury and most doubtless have suffered greatly. If, however, less than a tithe of the blossoms escape, there will be plenty for a crop. Asparagus in the open ground here is just beginning to be fit for use, which is about a month later than usual, but every head which has ventured through the soil is killed. Potatoes which were the other day 4 in. or 5 in. high, are now black and lying dead on the surface

of the soil. Some beds of *Dicentra spectabilis* coming into flower are also killed to the surface of the ground. Such are a few of the casualties experienced here, and it is to be feared that our case will not be found to be an exceptional one.—P. GRIEVE, *Culford, Bury St. Edmunds.*

The Weather and the Fruit Crops in East Anglia.—The week ending May 5 was a terrible one for the fruit crops, the wind being in the north-east all the while, with the exception of transitory changes—almost momentary—into the south to what the appetite for more intense cold—frosts from 7° to 12°, according to altitude and locality. On the 4th a few drops of rain attempted to fall and were converted into snow. Peaches, Nectarines, and Apricots have suffered severely; Pears, few of which are fully open, seem yet to be safe. It is too early to write of the effects of the frost on Cherries and Plums in full flower. The promise of a heavy fruit crop is simply magnificent, but the prospect of carrying it safely through is not bright at present. Gooseberries and Currants seem to have escaped here, but in low-lying localities it is feared they have perished. Early Potatoes dressed with Salus for safety against disease have been out to the ground by the frost in their first essays at growth. Early Peas unmistakably show the effects of the late cutting winds.—D. T. FISH.

—Spring frosts and withering winds have been unusually destructive this season. Green vegetables of all kinds have been exceedingly scarce; their growth, in fact, appeared to be paralysed, while that of young crops is unusually slow even in sheltered positions. Fruit trees that at one time promised to blossom early are now very late, which, while frosts and east winds last, is so far fortunate. I have not yet seen an Apple bloom expanded; in fact, some of the late-flowering kinds scarcely show any signs of the buds swelling. As regards seeds of tender crops, where the soil is heavy it is best to defer the sowing until somewhat later than usual, as nothing is gained by hurrying seed into land in a cold, sodden condition.—J. G., *Henham.*

Syringing Vines.—I should certainly object to shutting up and steaming or bathing Vines with water, as is stated (see p. 292), but there is a medium in all things, and especially as regards this matter. I always use the syringe in the Vinery from the time when the house is closed till the fruit is ripe, and my father, who has been a successful Grape-grower for the last forty years, has always done the same, and we are never troubled with red spider or any other insect pest. I syringe freely at starting, and maintain a moist atmosphere until the Vines are in bloom, when I use the syringe more sparingly, but keep the ground and the lower part of the house somewhat moist. As soon as the Grapes are set, I again syringe freely, giving plenty of air. My opinion is that judicious syringing strengthens the Vines, instead of making the wood tender or spongy, as some assert. If "Nemo" (see p. 348) maintains a moist atmosphere, gives plenty of air at top and bottom when the fruit is colouring, does not syringe the bunches after the berries change colour, but simply keeps the ground somewhat moist, leaving a little air on at top all night as well as during the day in dry weather, he will have Grapes of superior colour and flavour, and not be troubled with red spider. I may add that the water used for syringing should be perfectly clean and never below 60°; syringing with cold water is generally followed by bad results.—CHARLES H. KITCHING, *Cokethorpe Park, Witney.*

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Wash for Fruit Trees.—Mr. Charles Downing, the eminent American fruit-grower, writes as follows on washing fruit trees:—"Why use lime for the trunks and large branches of trees? It has an unnatural and unsightly appearance, while soft soap leaves the bark smooth and of a natural colour, and my experience is that it is more effectual. Potash is equally good. Dissolve each pound in a gallon and a half of water; put it on with a stiff brush, and when no use the brush should be kept in water. The person using it should be careful not to get the potash on his hands and clothes. Soft soap should be put on as thick as it can be used. Any rough bark should be scraped off before washing the trees, and when washed annually no rough bark or Moss will appear."

PLATE LXXIII.

GREIG'S TULIP.

(TULIPA GREIGI).

Drawn by F. W. BURBRIDGE.

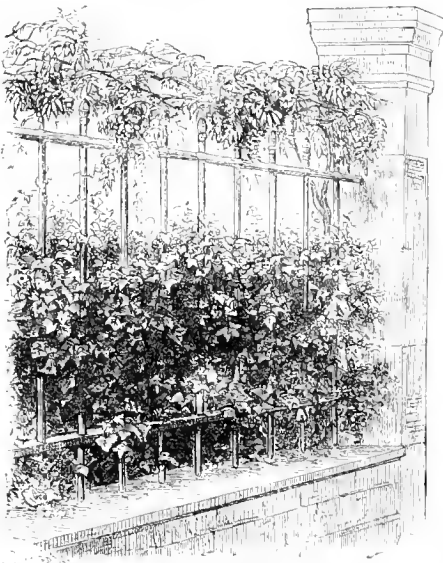
THIS handsome early-blooming Tulip is a native of Turkestan, whence it was sent by Russian collectors to the Botanical Gardens at St. Petersburg two or three years ago. Of all the known species of Tulip, and there are some twenty-six described in Vol. V. of THE GARDEN (1874), p. 48, this is, perhaps, the most showy and desirable as a garden plant. It blooms freely in April or May, its large goblet-shaped flowers being generally of a vivid orange-scarlet colour; but there are also purple and yellow-flowered forms of this Tulip. Herr Max Leichtlin, of Baden-Baden, by whom the plant was introduced into commerce, tells us that its bulbs are so extremely hardy that they will withstand freezing and thawing with impunity, and that even when the leaves are half-grown they will endure a temperature as low as that of zero without any protection. The first collector who sent living bulbs of this Tulip to the director of the Imperial Botanic Gardens at St. Petersburg, appears to have been Karolkour, who visited Central Asia in 1872. The plant was at first referred to *T. altaica*, but Dr.

Regel eventually found it to be a new species, and named it *T. Greigi* in honour of General Greig, President of the Imperial Russian Horticultural Union. Having now seen it growing in gardens near London for the last two seasons, I have no hesitation in pronouncing it to be one of the most distinct and precious of all spring-flowering bulbs. The plant is a vigorous grower, attaining a height of from 9 in. to 15 in., each of the stout, erect, puberulous scapes bearing a solitary flower from 4 in. to 6 in. in diameter when fully expanded, and three or four lanceolate, glaucous leaves with undulated margins, the whole of the upper surface being boldly blotched with purple or chocolate-brown. Mr. J. G. Baker states, in the "Botanical Magazine," that during the last two years no fewer than three striking new Tulips have been added to the list of species cultivated in this country. Although they come from different localities, they all resemble one another closely, both from a botanical and horticultural point of view; they are *T. boetica* of Boissier, a native of Greece; *T. Eichleri* of

Regel, a native of Georgia; and *T. Greigi*. To compare them with familiar types, all the three species come between *T. suaveolens* (the common early Duc Van Thol Tulip of gardens) on the one hand, and on the other, *T. oculis-solis* and *T. præcox*. They show the dwarf habit, downy stems, and nearly uniform obtuse, perianth segments of the first, but have the large nearly black basal blotch with a distinct yellow border, which fills up the whole claw of the perianth segments of the last, and gives to the flower its most characteristic mark as compared with *T. Gesneriana* and other common kinds. B.

WISTARIA AND IVY ON RAILINGS.

THE accompanying engraving shows a graceful mode of growing Wistaria and Ivy on railings which may now and then be seen in the neighbourhood of Paris, and which well deserves the attention of those wishing to form ornamental screens on railings, &c. The effect of the Ivy below is, of course, good at all seasons, particularly in winter and spring when the Wistaria is bare. At this season the recently bare shoots of the Wistaria are liberally graced with large bunches of bloom, and frequently there is a second crop in autumn. Forming graceful and enduring, though changeable, little pictures of this sort is that which best repays for expenditure in gardens.



Wistaria and Ivy on railings.



"INSECT-EATING" PLANTS.

SINCE the appearance of Mr. Charles Darwin's book upon this subject some few years ago, the theory of carnivorous or insectivorous plants has created a great deal of interest in the scientific world. A short time afterwards another English botanist published a series of fresh observations, which greatly added to our knowledge of these singular plants. The idea, however, was not of recent origin, and botanists who have taken up this interesting subject are well aware that the foundation of all researches in this direction was laid by Ellis, an English *savant* of the last century, who published his researches as far back as 1768, in which year he informed Linnæus that, according to Bartram the traveller, the *Dionæa muscipula*, a plant growing in North Carolina, was insectivorous. He also communicated to the illustrious Swede his own observations on the irritability and prehensile movement of the leaves of this *Dionæa*, properties which had never hitherto been observed to exist in the vegetable kingdom. In communicating these details to Linnæus, Ellis gave it as his opinion that the plant not only caught and killed insects, but actually fed upon them. This idea was corroborated some sixty years after by an American observer (the Rev. Mr. Curtis), who

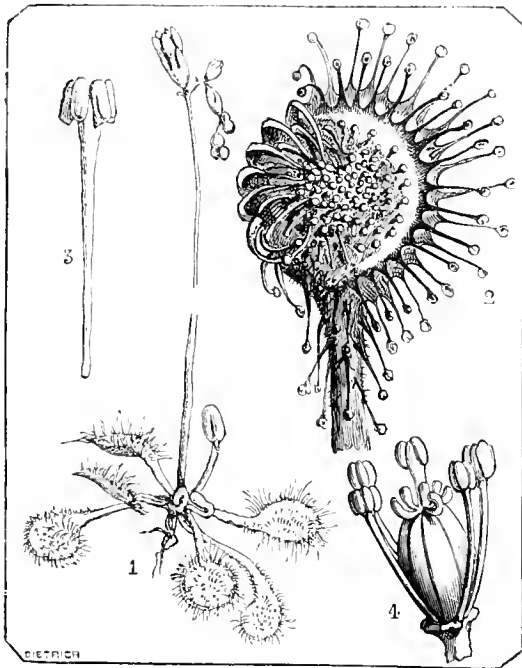


Fig. 1. *Drosera rotundifolia* (Sundew).—1. The entire plant. 2. A leaf enclosing in its tentacles an insect placed in the centre. 3 and 4. Structure of the stamens and ovary.

published his observations on the wild plants growing in the marshy prairies of North Carolina in 1834. He remarked that under the irritation caused by the feet of the insects, the two lateral portions of the leaf on each side of the midrib approached each other suddenly and crossed the stiff hairs growing on the edge of their upper surface, and that independent of the act of capture, the leaf exuded a mucilaginous substance, which completely covered the insect, causing it to dissolve and disappear through its corrosive action. Curtis, however, made no converts to his theory, which was treated with incredulity by the naturalists of his day, and it is only since Darwin revived the subject that scientific men have taken any real interest in it. The publication of his researches brought the Venus's Fly-trap into such favour that nurserymen found it difficult to satisfy the demand, and the spongy prairies of North America were ransacked to supply the wants of eager experimentists all over the world. The experiment was simple enough to come within reach of any one. It was merely necessary to place a fly or any animal matter on the upper portion of the leaf in contact with the six little cones with which it is provided, when the two sides of the leaf immediately closed

over the intruding body. Following in the wake of Darwin, botanists fed their *Dionæas* to repletion on flies and other animal food, and the enthusiasm of many of his admirers soon carried them far beyond their masters: Professor Balfour went so far as to declare, that when a toothsome morsel was presented to the leaf its mouth watered, so to speak, the secretion being greatly increased in quantity; while Mr. Canby stated seriously that a forced diet of cheese was prejudicial to the *Dionæa's* system, causing a veritable nausea. The force of enthusiasm could no further go, and the opinions just cited brought about a healthy reaction. Observers began to look about for other plants giving evidence of these natural miracles, as Linnæus called these singular phenomena. Those small and delicate plants, too, known as the Sundews (fig. 1), bear leaves whose upper surface is covered with glandular hairs of a sufficiently complex structure to be considered as part of the leaf itself. Towards the end of the last century a German botanist pointed out that the leaves of the Sundew were capable of catching insects that alighted upon them, and these members of the *Droseraceæ* were placed in the rank of carnivorous plants. As in the case of the *Dionæa muscipula*, flies and pieces of meat are seized and dissolved in a few hours. The glandular processes of the leaves being the main agents in capturing and retaining the insect or scrap of meat, the attention of botanists was more especially directed to those Sundews. The *Pinguiculas* (fig. 2) of our peaty meadows also belong to the class of insect-eating plants. Their fleshy leaves are covered on the upper surface with hairs, some of which are sessile, while others are pediculated, their summits being crowned by a glandular process, formed of radiating cells, not at all unlike a small Mushroom. The following interesting description is from the pen of M. Edouard Morren:— "A small fly, attracted probably by the glutinous appearance of the leaves of the *Pinguicula*, foolishly alights on one of them. From that moment his fate is sealed. He finds himself captured by the feet, which stick fast to the glutinous and downy surface. He struggles in vain to regain his liberty, and even if he succeed in loosening one of his feet, the others stick all the faster. He wears himself out in his vain efforts to escape, and, speedily resigning himself to his doom, falls motionless on his side in the saliva-like liquid, which gradually works into his body, and the poor insect dies a lingering and painful death in the course of several hours. When at last death takes place, the body of the fly is but little altered in shape and roundness, but the next day it begins to flatten, and seems to be glued still more firmly against the leaf, until at last it appears to be incorporated with it. In two or three days almost all vestiges of the insect disappear, nothing being left but the skin." Thus far M. Morren; but our researches ought to be extended further, and all plants provided with leaves in the form of receptacles, or whose surface is glandular, ought to be received into the class of carnivorous plants requiring supplementary nourishment. An American observer, amongst others, put forth the opinion that the *Utriculariæ* were insectivorous plants. The singular structure of their bladders has been the object of constant investigation; here and there at the base of the ramifications of the bladders are little vesicular bodies, which are divisions of leaves transformed into vesicles, as has been proved by M. Duval Jouve. Every one of these little organs is hollow like a sack, its contracted neck being closed by a lid, over which is a crown of leaf-like segments, or a little ring of hairs to guard the aperture. "These bodies," says M. Duchartre in his "Éléments Botaniques," play a physiological part, which increases our interest in them. First of all, they are full of a gelatinous liquid, which is sufficiently heavy to keep them at the bottom of the water, but a short time before the flowering season sets in the aerial canals of the stem convey air to the subaqueous parts of the plant, which, being rootless, rises to the surface of the water and throws out its flowers. The flowering time euded, and the fruit having nearly attained a state of perfection, the air disappears from the interior of the bladders." The transverse blade with which the orifice of the vesicle is furnished, closes it like a valve, and is capable of opening and shutting both inwards and outwards when it is compressed. It is then that the water by which the plant is surrounded forces it downwards to the bottom of the marsh or piece of

water containing it. It has been observed that when the cover of the bladder is open, or forced apart by an insect or crustacean, it is impossible for the animal to escape, so that the interior of these vessels always contains the organic remains of putrefied insects, which apparently help to feed the plant. The genus *Aldrovanda*, the only known species of which is an aquatic plant, one variety of which is found in the stagnant pools of the south of France, is regarded as possessing the same properties, although there is no trap, as in the case of the *Utricularia*; but it must nevertheless be remarked that in both cases the breaking up of the tissues of the animal is performed by the glands with which the walls of the flower are covered, and that absorption of animal matter takes place. "Thus," says Darwin, "every ordinary plant that is provided with viscous glands which accidentally catch insects may, under favourable circumstances, become changed into a species capable of digesting truly." From the *Utricularia*, an aquatic plant (which is not, it is true, endowed with powers of movement like the *Dionæa*, but which is provided with its peculiar sacks or vessels), to aerial plants provided with apparent pitchers there was but one step, for analogy of form seemed to presuppose analogy of function. Plants bearing these receptacles were consequently immediately put under contribution, and Dr. J. D. Hooker, in a remarkable discourse, described his observations on the *Sarracenia*s and *Nepenthes*. There are but few collections of plants, whether private or public, which do not contain representatives of these two genera. The *Sarracenia*s are plants growing in the marshes of North America, of which the species *S. purpurea* is the most commonly cultivated. Their leaves, through an anomaly of development, increase in size at an early stage on the outside of the rim, so that they gradually grow into a boat-like form. According to M. Baillon, the leaves of the *Sarracenia* are almost peltate at the time of their development, but gradually fold their edges over until they assume a tube-like form. The form of this tubular leaf may be imitated by drawing the leaf of a *Nasturtium* through a small tube by means of the petiole. As for the formation of the pitchers of the *Nepenthes*, Dr. Hooker has already given us a long account of it, and it results from his observations that the urn of the *Nepenthes*, instead of being the leaf itself, is a gland situated at the apex of the inner surface of the leaf. This supplementary organ increases in size, the parts become distinct, and the pitcher and its cover are gradually formed. The urns of the *Sarracenia Drummondii* and *S. Darlingtonia* are often of great capacity, and in some cases hold as much as 8 or 9 fluid ounces. The *Nepenthes* are rather more difficult to cultivate than the *Sarracenia*s, owing to their habitat being within the tropics. Their urns are frequently varied in structure, according to the species. Certain of them have pitchers over 1 ft. long, and streaked with different colours. Their edges are often provided with stiff hairs, sometimes even with thorns, the point of which are directed inwards and downwards. The back part being very smooth, we have all the conditions necessary for an efficient trap from which escape is impossible. These urns normally contain a liquid which is said to be secreted by the inner surface of the pitchers; one thing, however, is certain, that the moisture of the air, that of a hothouse, for instance, is condensed and stored up within these receptacles. The presence of insects in these urns, a fact which had been observed by many travellers, was readily taken advantage of by Dr. Hooker, who subsequently proved that the introduction into the urn of inorganic matter produced no appreciable effect, although a piece of animal matter immediately determined a considerable increase in the amount of liquid. He also proved that out of the urn the liquid produced but feeble signs of having digestive properties, while in the interior animal substances were rapidly and completely digested. The *Sarracenia*s and *Nepenthes* may therefore be considered as belonging to the class of insectivorous plants. The only species of *Cephalotus* (*C. follicularis*—Labill.), is a pretty little plant belonging to the *Saxifragæ*. It bears gracefully-formed urns provided with covers, with wings covered with hairs, which curve elegantly outwards from the pitchers. No experiments appear to have been made on this plant, or if they have they are unknown. M. Lemaire, however, in an article on this plant, states that the urns, like those of *Sarra-*

cenias and *Nepenthes*, contain a liquid in which large numbers of insects drown themselves. In the *Dionæa* we have two phenomena which are sufficiently remarkable: the first is the irritation which the mere touch of a fly's feet produces on one of the six glands which are on the upper surface of the leaf; the second, the fact that wind and rain have no action on these glands, except water be projected on them sideways with a certain degree of force. M. C. de Candolle, who has studied the structure of these glands, states that they are formed of the parenchyma of the leaf being one with deep tissues, and that they are not like ordinary hairs, a mere epidermic production. If the epidermis of the leaf be excited, no effect takes place. As soon, however, as the glands are touched, no matter how lightly, the effect is immediately perceptible. This action is immediately communicated to all parts of the parenchyma of the inside of the leaf, which is immediately affected throughout the whole of its interior. Various writers have tried to explain this excitement by the tension and turgescence of the tissues. It is a well-known fact that vegetable cells while growing are provided with a thin skin which is perfectly closed, but which nevertheless has the power of absorb-

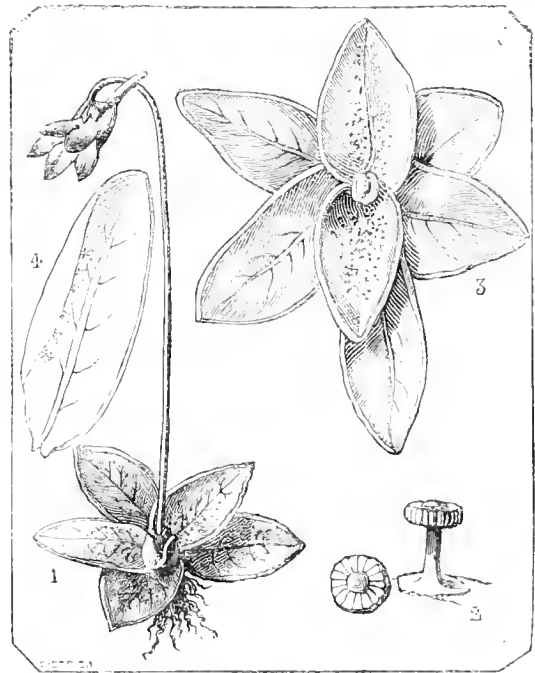


Fig. 2. *Pinguicula vulgaris* (Butterwort).—1. The entire plant. 2. Large glands placed on the upper surface of the leaf. 3. Leaves in the form of a rosette, containing the remains of an insect. 4. Leaf, the edge of which has shut over an insect.

ing through its walls the gases and liquids by which it is surrounded; but whether from the immaturity of the cell, or from some other reason which need not be inquired into at the present moment, the younger cells seem capable of absorbing liquid more rapidly than their older neighbours. This phenomenon has been studied in the Sensitive Plant by M. Paul Bert, and M. C. de Candolle explains the phenomena taking place in the *Dionæa* by supposing that the turgescence of the upper layer of the parenchyma of the leaf suddenly ceases when the glands become excited. The upper layer of cells becoming flaccid, the leaf naturally curls inwards like a piece of damp paper held before the fire. On the other hand, the lower surface is alone provided with stomata, and the turgescence of this portion of the leaf is not in equilibrium with that of the upper surface. It follows that the leaf already has a tendency to roll itself. It must also be borne in mind that the valves of the leaf shut in the evening like those of the Sensitive Plant. Be this as it may, we are still perplexed on some points after all those remarkable researches, and even authors themselves acknowledge that there are many difficulties to be cleared up before arriving at the truth. How,

for example, is such rapidity of movement effected? Is not the instability of the tissue affected the real cause of the movement? As yet we have no satisfactory answer.

We now come to the question of the absorption of animal matter by these plants. M. C. de Candolle affirms that for six weeks he has fed *Dionæas* on flies and other insects, morsels of beef, white of egg, &c., side by side with others which have received no animal food, but that he could perceive no difference in the health or appearance of any of the plants. The *Drosera* has been extensively studied by M. Edouard Morren. Here the conditions are somewhat different. The glands with which the upper part of the leaf is furnished secrete a

viscous liquid with an acid reaction. Animal matter is therefore attacked and disintegrated by this liquid, which, in some respects resembles animal gastric juice. The slow movement which is produced in the hairs or tentacles of the leaf from without inwards, whenever a piece of animal matter is presented, would favour the supposition that the plant really requires animal food. The hairs, having bent inwards upon the animal substance with which they have been irritated, remain in perpendicular contact with it, covering it with their acid, viscid secretion. A few hours later on, the albuminous portions of the animal matter become transparent, its angles disappear, and after a day or two but little traces of it are left. What seems so singular is the preference which the tentacles appear to possess for animal matter, while to paper, wax, Elder pith, or any other non-azotised substance, the tentacles appear utterly indifferent; indeed, in some cases the tentacles have been known to bend away from the objectionable object. Mr. Darwin in no way doubts that the glands, which possess the property of dissolving azotised matter, are at the same time organs of absorption. This illustrious naturalist sees the proof of this function in the fact, that azotised matter, especially carbonate of ammonia, induces the aggregation of protoplasm of the upper cells of the tentacle, but the action of ammonia on all plants has long been patent to the whole world. It has also been satisfactorily proved that ammonia is absorbed by the leaves of most plants, especially certain species of *Bromeliaceæ*, which have no roots. The acid liquid secreted by the leaves is stated by Dr. Frankland to contain either propionic or valeric acid. That there is an absorption of azotised matter there can be no reasonable doubt. One chemist fed a *Drosera* on flies which had been soaked in chloride of lithium, and several days after found

traces of that rare metal in all parts of the plant. According to MM. Edouard Morren and Duval-Jouve, the animal matter presented to the *Pinguiculæ*, *Utriculariæ*, and *Aldrovandæ* goes through all the stages of putrefaction, such as the formation of putrefaction, ferments, mycelia of fungi, bacteria, and mycodermis of various kinds. The action of the viscid liquid, however, manifests itself on the albuminous portions of the animal matter, giving them a transparent appearance that seems to indicate the beginning of solution. One of the arguments which militate most in favour of the theory of carnivorous plants is offered by the fact, that animal matter placed on the leaves provided

with glands is preserved for a much longer period than if it were to be placed on an ordinary leaf of the same plant. At a late meeting of the French Botanical Society, when this question was brought forward by M. Heckel, a member observed that there was nothing wonderful that an acid liquid, whether a glandular secretion or not, should preserve animal matter from putrefaction any more than that sound vegetables should be kept free from taint by being immersed in vinegar; but we must also recollect that all acids are not antiseptic in their properties. M. Duval-Jouve, in a most conscientious spirit, has done all in his power to glean the truth from a large number of often contradictory observations made by distinguished naturalists. He has partly refuted the observations concerning the absorptive powers of the glandular surface of the *Utriculariæ* and *Aldrovandæ*, for the reason that these glandular surfaces are to be found on all parts of the plant, and that one part cannot be more absorbent than another. Considering all that has been done by a multitude of observers, we are obliged to acknowledge that the first arguments drawn from them went a little



Fig. 3.—*Arum Draunculus* (one-third the natural size).

too far, while those radical naturalists who totally deny that carnivorous plants exist at all are just as intemperate on the other side. The question of absorption is the true point in dispute. We must not, therefore, be surprised if we find the statements of observers on this point to be often contradictory, more especially as a certain amount of divergence of opinion still exists with regard to the absorptive functions of ordinary leaves and roots. The *Sarracenias* and *Nepenthes* have not given rise to so many bitter disputes as the *Dionæas* and *Droseras*, owing to the absence of the acid secretion, and their claim to a place amongst insectivorous plants has had but few adherents. The liquid they contain is neutral to test paper, and can hardly prefer

traces of that rare metal in all parts of the plant. According to MM. Edouard Morren and Duval-Jouve, the animal matter presented to the *Pinguiculæ*, *Utriculariæ*, and *Aldrovandæ* goes through all the stages of putrefaction, such as the formation of putrefaction, ferments, mycelia of fungi, bacteria, and mycodermis of various kinds. The action of the viscid liquid, however, manifests itself on the albuminous portions of the animal matter, giving them a transparent appearance that seems to indicate the beginning of solution. One of the arguments which militate most in favour of the theory of carnivorous plants is offered by the fact, that animal matter placed on the leaves provided with glands is preserved for a much longer period than if it were to be placed on an ordinary leaf of the same plant. At a late meeting of the French Botanical Society, when this question was brought forward by M. Heckel, a member observed that there was nothing wonderful that an acid liquid, whether a glandular secretion or not, should preserve animal matter from putrefaction any more than that sound vegetables should be kept free from taint by being immersed in vinegar; but we must also recollect that all acids are not antiseptic in their properties. M. Duval-Jouve, in a most conscientious spirit, has done all in his power to glean the truth from a large number of often contradictory observations made by distinguished naturalists. He has partly refuted the observations concerning the absorptive powers of the glandular surface of the *Utriculariæ* and *Aldrovandæ*, for the reason that these glandular surfaces are to be found on all parts of the plant, and that one part cannot be more absorbent than another. Considering all that has been done by a multitude of observers, we are obliged to acknowledge that the first arguments drawn from them went a little

a better claim to being considered a fly-trap than an ordinary bottle half-filled with water. If we once take away the qualification of insectivorous from fly-catching plants, we may at once increase the class beyond all bounds, and the *Silene Armeria*, *Lychnis viscaria*, *Physianthus albens*, *Apoeynum androsæmifolium*, some species of *Erica*, and several others, must all be classed amongst carnivorous plants. The *Aristolochia Clematidis* imprisons any fly that may enter its bell until fecundation has taken place. Certain of the Aroids, the *Arum Dracunculus* (figs. 3 and 4), for instance, are most efficient fly-traps. In *Arum Dracunculus*, the phenomena are somewhat complex. The inflorescence is trumpet-shaped, is

10 in. or 11 in. in length, and 5 in. or 6 in. across the mouth. The livid tint of the inside of the spathe, which is of a dark violet, and the strong and disagreeable odour which it emits, attract flies in swarms; besides this, the interior surface of the spathe is lined with hairs hooked at the end. The strong smell seems to act as a narcotic on the flies, and they die suffocated either by the odour or a certain amount of carbonic acid gas which these flowers produce while in blossom. M. Daveau, of the French Botanical Society, describes two other plants which have never hitherto been considered to be fly-traps, but which have some claim to be placed in that category. One of these is the *Mentzelia ornata*, one of the family of the Loasææ, a native of Texas (fig. 5). It bears a yellowish-white flower measuring about 3 in. across. The whole of the plant, with the exception of the petals, is rough to the touch; this is due to the leaves and stems being thickly covered with hairs of a peculiar structure, as shown at A, fig. 5, but more especially on the outer surface of the receptacle. All the Loasææ are provided with these

hooked hairs, which sometimes have stinging properties, having a bulb at the base containing an acrid liquid like the ordinary Nettle; these hairs, although harmless to man, are fatal to insects. The hairs growing on the *Mentzelia*, which are not stinging, are shown at A, fig. 5; unlike the urticating hairs on other members of the Loasææ family, they are solid, and provided with a number of curved barbs; between these barbed hairs are shorter ones with a soft bulb at the top; this bulb exudes a viscid substance, having a peculiar odour very attractive to flies, which endeavour to taste it by inserting their probosces between the barbed hairs in order to taste the bait. Having sipped their fill, they endeavour to withdraw

their probosces, which are immediately pierced by the barbed hairs. The insect gradually tries to escape by pulling and twisting his proboscis in all directions, generally leaving his head behind him in his frantic efforts to release himself. If a plant of this species be examined on a fine sunny day, the outside of the receptacle is generally found to be partially covered with the heads of flies which have decapitated themselves in their endeavours to escape. Even the smaller diptera do not escape, for the viscid matter of the smaller hairs is of so glutinous a nature that they cannot withdraw their probosces, and perish as miserably as their larger brethren. These plants, although most effective fly-traps, can hardly be called carnivorous, or even insectivorous. Another example is afforded by one of the Aselepiads, *Physianthus albens*, which, according to M. J. Belleruche, a Belgian botanist, performs the same office on butterflies, the trap being this time in the interior of the flower. The *Gronovia scandens* is one of the Cucurbitaceæ, and a native of equatorial America (fig. 6). It is a climbing plant, giving out numerous stems, the stalks and leaves being covered with long, strong, flexible hairs, each terminated by a couple of claws, like those of a cat, which lay hold of everything that touches them. In the Jardin des Plantes, in Paris, several of these plants are cultivated under glass in a hothouse, which is much frequented by small lizards on account of the warmth, but whenever they venture to climb on the *Gronovias* after the flies, which form their natural prey, the claws of the long hairs described above enter the interstices of the lizard's scales, and effectually imprison it. The large lizards generally manage to escape, but the smaller ones often fall victims to their temerity. M. Daveau has counted as many as seven dead bodies in a single day

on one plant. The lizard figured in the cut when measured was found to be 4 in. long.

After the facts cited above one can hardly decide peremptorily on the value of Darwin's theory without assuming a great responsibility. However this may be, it is certain that the observations made during the past few years are frequently contradictory, and that the advocates of the carnivorous or insect-eating theory have been but too frequently carried away by their enthusiasm. It is to be hoped that the researches which are now being carried on by so many naturalists will throw a true and strong light on these mysterious phenomena of vegetable life.—"La Nature."



Fig. 4.—Section of an *Arum* flower, in the interior of which are several captured flies.

GRAFTING AND BUDDING.

In grafting, as in many other operations connected with gardening, mechanical ingenuity cannot of itself, as a rule, insure success; the principles on which it depends must be acquired. I have been led to make these remarks while musing on the instructions which I got as regards grafting in the early days of my gardening career, when, with the regularity of returning spring, we used to march (two of us) with spade and handbarrow into one particular field where clay was to be got. We wanted it tough, and it was not tough, but we spread it out on a brick floor, and we poured water on it to increase its resemblance to putty; into this we battered as much horse-manure as there was clay. This constituted what may be termed the hair of our plaster — at least it served the same end, that is to say, it prevented its cracking and falling off the trees when dry. Then we had our bast to prepare; a can of water accompanied us, and a bundle of grafts from behind a north wall, and then we set out for the grafting ground. Our Apple stocks were in lines $2\frac{1}{2}$ ft. apart; they were, as a rule, about 4 ft. high, and generally thicker than a man's thumb. The first thing done was the cutting over of the stocks at the point at which the graft was to be fixed, generally from 9 in. to 18 in. from the ground. They were cut over where there was a clean straight stem 1 in. or 2 in. below the cut. One row of stocks was thus prepared. Then a stoutish-looking scion was selected. The knife was inserted behind a bud at its lower end, and an endeavour was made to cut in a slanting way right through the scion, the cut being about $\frac{1}{2}$ in. long. The scion thus cut was then placed on the stock, and its cut part marked the spot on which to lay the knife to commence an upward cut on the stock as nearly as possible the same as that on the scion. What we aimed at was, the getting of the inside bark of stock and scion to fit exactly. When that could not be done, we generally contented ourselves if the lower end of the scion fitted the stock that way, and the portion above that fitted at one side. Before fastening it we made a small downward cut, $\frac{1}{2}$ in. in length, beginning $\frac{1}{4}$ in. from the top of the stock. Then to prepare the scion for fitting the stock an upward cut was made in it, beginning fully $\frac{1}{2}$ in. from where the splice was taken off. The scion was then fixed in its place by pushing the tongue of the scion into the cut portion of the stock. It was then carefully bound up with bast and clayed over, the claying process being finished with wet hands, thereby thoroughly completing the graft. Occasionally, by way of variety, they were grafted saddle-fashion. Saddle-grafting is done by cutting the stock into a thin wedge, and fitting the scion over it, which is a very good

way of grafting when scion and stock are of nearly equal diameter. When these scions had begun to grow the clay was removed, and the ties loosened and retied to prevent accidents from wind. In this way I have successfully grafted Apples, Pears, Plums, Cherries (these last are much better budded), Thorns, Ash, Birch, Hollies, &c., in the open air, in all cases just when the buds were going to burst. As already stated, when grafting day came we went behind a north wall for our scions. These scions had been taken off early in February, and were consequently dormant when used. However, I remember we got a large number of coarse-looking Thorns,

the seeds of which came from British Columbia, and which it was determined to graft with scarlet and other fine-flowering varieties. To work we set, and, being late in getting our order, we had to take our scions from the bushes and insert them the same day. Large numbers were grafted under these conditions, and about 50 per cent. failed. The year before we had grafted a few of them and none of them failed; but then we had our grafts taken off six weeks before, and had them behind a wall where they were kept dormant. Roses are grafted in heat; they do not succeed in the open air, because one cannot get Rose scions as one can those of an Apple. Indeed, the Rose is always growing, at least, to a greater extent than an Apple or Pear tree, and the greatest success is when the stocks are forwarded in a little heat, and grafted with scions from the open ground just as they have pushed their buds a little. They are grafted just in the same way as Apples or Pears, and soon push into growth. When fairly united, they should be hardened off gradually. The stock most generally used is the Manetti, although they do very well on the Brier. Inexperienced grafters wanting to try their hand, should strike cuttings of the Manetti, by putting in cuttings in the way recommended for Roses about the middle of September. After growing one year they are fit to graft. For this purpose they should be potted the previous November, and kept in a cold frame through the winter. At the end of January they may be placed in a temperature of from 50° to 60° , when they will soon push, and should be treated as above. Under this system we have been successful in doing them. Rhododendrons and similar subjects are grafted under pretty much the same conditions as the Rose, viz., by starting the stocks in heat. They succeed best in a close, moist temperature, under double glass, as they strike less quickly than most deciduous things.

Budding is a kind of grafting which is generally done in summer, or during the period of growth; the principle of it is just the same as grafting, but smaller portions of it are used



Fig. 5. *Mentzelia*.—(A) The proboscis of a fly captured in the glandular hairs of the receptacle (greatly magnified).

as scions. Many things are budded, but the Rose is the plant on which the inexperienced delight to operate. The time for this is July, or when the buds are fairly plump on shoots that are neither green and sappy on the one hand, nor hard and ripe on the other, and when the bark on the stock rises freely. Whether the operation is on stocks intended for dwarfs or standards, it is mechanically the same. When the operator is ready to begin, let him select such a shoot as I have described; having strands of bast or worsted ready, and a sharp budding-knife, let him fix on the spot where he intends inserting his bud; in standards the best place for this is at the base of shoots which have grown out of the stock this season. The buds should be pushed down to the very base, so that when they grow they may seem to spring from the stock. A cut is made across the shoot, and a longitudinal one from the centre of that in the form of a T an inch or more in length. The bud is removed from the shoot, and any wood

THE KITCHEN GARDEN.

EVILS OF EARLY POTATO PLANTING.

AFTER sharp frosts of from 9° to 10° in severity, accompanied by intensely keen easterly winds for several nights in succession, in what condition are Potatoes that have been planted early, except where very special shelter and care have been afforded? There is not a portion of haulm left above ground, a circumstance which should surely warn people against early planting of Potatoes in general, and of first early kinds in particular, in the hope of securing early crops. It is useless to attempt fighting against insuperable difficulties, and amongst these must be classed sharp, white frosts in May. It is not, however, proposed to prevent growers from starting a few rods early, if they can give them the requisite shelter when needed, but unless that can be done, the seasons show that the chances



Fig. 6.—Lizard captured by the stiff hairs of a Gronovia. (Drawn from Nature, at the Jardin des Plantes).

which is cut with it is removed, being careful to leave heel of the bud—not pulling it out, thus leaving a hole. The bud being ready, it should be pushed down as far as the cut will allow, and the eye should be from $\frac{1}{4}$ in. to $\frac{1}{2}$ in. below the cross-cut. Any portion of the bark which is above this should be cut square across, so that it just fits the cross-cut in the stock. If the shoots of the stock be long and dangling, their points may be removed and the whole left till spring, loosening any ties which may pinch, and re-tying when necessary. In March the ties should be wholly taken off, and the shoots cut back to the bud. Cherries, Plums, Peaches, and a host of other things are propagated by budding.

J. HONEYMAN.

THE FIR AND PALM.

A Pine tree standeth lonely
On a barren northern height;
Slumb'ring, while snows have made it
A covering cold and white.

It dreameth of a Palm tree,
That far in an Eastern land,
Mourneth alone and silent,
On a parched and rocky strand.

HEINRICH HEINE.

are five to one against the Potatoes escaping uninjured. In what year do we not get these keen frosts at some time or other during the blooming of Plums, Pears, or Apples? Even now we are held in suspense with regard to the fruit crops, hoping that the blossoms and young fruits may have escaped the fate which has befallen the Potatoes. We now and then hear notes of praise sounded in favour of autumn planting, that is, about the middle of November. Now it is evident where such a plan is adopted that the haulm would be above the soil early in April, and thus the chances of having it slaughtered by frost would be greatly increased. If there be such an Arcadia anywhere in the kingdom where spring frosts are not known, there let autumn planting be practised by all means; but in other less favoured spots growers should study the seasons, and plant so that there may be a reasonable chance of their Potato crops escaping injury and being properly perfected. I have long been of opinion, and each year's experience supports my belief, that we ought not to commence planting until the

second week in April, and this should be with late sorts, going on gradually to the earliest of all, and if these be got in at the end of April, it is probable that they will not be through the ground until the middle of May, or perhaps a little later, and thus escape frost and the consequent check therefrom. Now that early Potatoes are cut down, those who planted them will find that they have not only stolen no march upon late planters, but further, that of the two they are rather behind. As soon as we get a change of wind with genial rains, the late-planted tubers will throw up their growth with great strength and rapidity, and perfect their crops early. On the other hand, haulm that has been cut down will take some time to recover its growth, which will be comparatively weak; indeed, the gain attending early planting is far more than counterbalanced by the mischief wrought by frost. Potato growers should learn to exercise the virtue of patience, have their seed stocks well hardened and exposed ready for planting at a moment's notice, the soil ready as far as time and weather have permitted, and then get their crops in as far as possible the last week in April and the first in May. A. D.

EARLY FRAME POTATOES.

WE have been lifting Potatoes for these last three weeks, which have been grown as follows:—In the last week in December we mixed together about ten cartloads of leaves and stable litter in equal parts. After letting this lie for a week, it was packed firmly 2 ft. deep, in a large frame covered with glass sashes and heated when necessary with a flue. Soil to the depth of 8 in. was placed on the top of the manure, and the surface when finished was about 2 ft. from the glass. Drills 4 in. deep and 15 in. apart were then drawn, and the sets put in 6 in. apart, and covered over to the original level. In a week the manure underneath was sending up a gentle heat, which it continued to do until the haulms were meeting between the rows. With this assistance they grew very quickly to this stage, and as fire-heat was never applied, and the plants not being far from the glass they did not become drawn or weak. Air was admitted freely during the mild days in March, and they were watered three times—first, shortly after being planted; again, when they were about half grown, and finally about a fortnight before we began to lift them. The soil in which they were planted consisted of about half decayed leaves, and the remainder loam. After the Potatoes have been all lifted, the pit will remain empty for a month or two. About the end of August the soil will be turned over, and the whole will be planted with Dwarf Kidney Beans; these will furnish gatherings until near Christmas; then they will be cleared out, the soil thrown on one side, all the decayed manure removed, when a fresh supply will be at once put in, and the Potatoes planted again. This I consider to be making the best of a large frame, as few vegetables are more acceptable than fresh Kidney Beans in November and December, and ripe new Potatoes in April and May. I find Bresee's King of the Earlies better than any of the Kidney varieties.—J. M.

Vegetable Marrows.—I grow two varieties of Vegetable Marrow, viz., the Large White and the Improved Custard, the seeds of both of which I sow in April. I fill a 6-in. pot with loam and leaf-mould, on which about half-a-dozen seeds are put round the edge, and the pot is afterwards placed in a heat of 60°. In this temperature the young plants soon appear, and as soon as they form the first rough leaf they are potted singly into 4-in. pots, and gradually hardened off until the last week in May, when they are planted out. I have planted them on an ordinary kitchen garden border, but I never had them so fine as I had them once on a heap of garden refuse in a reserve ground. I have also found them to be more fruitful when pretty closely pinched in than when allowed to ramble about as they generally do.—A NORTHERN GARDENER.

Salt for Onion Beds.—Where attacks of maggot are feared on Onion beds, $\frac{1}{2}$ lb. of salt scattered broadcast will do much towards remedying the evil. If the seed be already sown the salt may be applied, but if sowing have not taken place, the ground before being drilled should be sprinkled over with salt, and have a good raking in order to distribute it well. If a slight dressing of salt be applied to Onions after they have made their appearance above ground, it will greatly increase the growth of the plants, as well as help to preserve them from the attack of maggots.—J. S.

The Witloof Chicory.—If this root were plentiful—and there is no reason why it should not be, except for the demand—it might be made both interesting and useful to London people in this way. If five or six roots were put into a pot with a little soil, Cocoa-nut refuse, or sawdust, and an empty nut were turned over it, the roots would push on any window-sill or mantel-shelf. A few days would suffice to bring out sufficient leaf to fit it to be put on the table at breakfast or dinner, to be picked at—"Florist."

CULTURE OF HUMEA ELEGANS.

THIS useful biennial requires to be grown one year as a frame plant in order to prepare it for the second season, when it blooms during the summer and autumn months. The best situation for it is the centre of a large circular bed, or it may be grown in the form of single specimens on the lawn, plunging the pot which it occupies a little below the rim. It is also suitable for a back-row plant in a border, and it is sometimes used for the decoration of the conservatory, its want of showiness in the way of bloom being more than compensated for by its elegant habit. Seeds of it may be sown at any time between the middle of March and the beginning of May. Most people sow it either in shallow pans or in well-drained 6-in. pots, but I prefer sowing it on a gentle hot-bed, along with Balsams, Stocks, and numerous other annuals and biennials that I raise for the embellishment of the flower garden and greenhouse. When the young plants are large enough to handle, I prick them out singly in 3-in. pots, and allow them to remain on the hotbed until they become established. They should be kept as near the glass as possible; air should be given them daily, and water when required. The compost in which they will make rapid growth should consist of three parts turfy loam and one part rotten hotbed manure and leaf-mould, with a sprinkling of silver sand to keep the whole porous. As soon as the roots reach the sides of the pots, the plants should be moved into 5-in. ones, and replaced in the frame. They will not require much water at the roots immediately after they are repotted, but they should be sprinkled overhead, and the frame should be closed early. Under this treatment they will grow strongly and be furnished to their bases with foliage spreading over the rims of the pots. As they advance in growth, they must not be allowed to suffer either from want of water or increased pot-room; but the moment the pots are well filled with roots they should be shifted into pots a little larger in size, employing the same compost, and affording the plants plenty of head-room. Always take care to ensure perfect drainage. By the beginning of autumn they should be established in 9-in. pots, and the plants should be about 18 in. high. The foliage should never be allowed to droop from want of water, but it must not be given until the soil becomes dry; then give as much as will run through the ball of soil and show itself at the bottom of the pot. An ordinary greenhouse temperature will be warm enough for this plant in winter, protection from frost being all that it requires, and even a degree or two below the freezing point will be better than too much heat. It must have plenty of air on all favourable occasions. By the end of February it will begin to grow freely, and should be shifted into 10-in. or 11-in. pots, which will be the last shift required before being placed in the flower garden. About the beginning of April the plants may be moved into cold pits, and the lights taken off during mild weather. Before they are planted out the ground should be deeply dug and made tolerably rich. After planting, give them a good watering, and fasten each plant to a stout stake. If required for the embellishment of the greenhouse, balcony, or verandah, the most healthy-looking plants should be selected and potted into 12-in. pots at the time when the other plants required for the flower garden receive their last shift. Water must be given carefully until the roots strike into the new soil, when they may have manure-water once a week. They cannot have too much light and air, nor can they be kept too cool, provided they are protected from frost. As the growth increases, they will require more room, and they must be turned round occasionally to prevent them from becoming one-sided. If they be kept too close, or in a damp atmosphere, thrips and green fly will soon make their appearance, and these must be checked by occasional fumigations with Tobacco paper. R.

Begonia Incida as a Wall Plant.—This is a free-growing glossy-leaved species of rambling habit, but it is one of the most effective plants with which I am acquainted for draping the back walls of warm plant houses or conservatories. It is readily increased by means of cuttings struck in heat, and small plants of it introduced here and there on Fern-covered walls soon develop themselves, and hang down in bright green wreath-like masses, forming a good contrast to the darker-leaved Ferns and other plants with which they may be associated. It may also be used with good effect as a basket plant.—B.



Black Allium (*A. nigrum*).



Virginian Stock (*Malcolmia maritima*).



Arabian Star of Bethlehem (*Ornithogalum arabicum*).



Twin-flower (*Linnaea borealis*).



Great Speckled Iris (*Iris Susiana*).



Double Buttercup (*Ranunculus repens* fl.-pl.).



Garden Ranunculus (*R. asiaticus* fl.-pl.).



Purple Rock Cress (*Arabis arenosa*).



Double Wood Lychnis (*L. sylvestris* fl.-pl.).

SOME HARDY FLOWERS OF THE WEEK IN LONDON GARDENS.

HARDY FLOWERS IN LONDON GARDENS.

LATE-FLOWERING Narcissi are still attractive, especially large beds planted with such varieties as *N. bicolor*, *N. muticus*, and a number of hybrid kinds. Jonquils, are just now at their best, and a very large and free-flowering Narcissus of the yellow Hoop-petticoat Narcissus (*N. Bulbocodium*) is also exceedingly attractive. Either as a rock plant, or for clothing banks or decorating narrow borders, this variety deserves extensive and careful culture; its bright golden funnel-shaped flowers, rising only a few inches above the ground, produce a good display during April and May. Polyanthus Narcissus is likewise in full bloom, and the white flowers of *Anemone nemorosa* are being brought in large quantities to Covent Garden, where they are found to be useful in button-hole and other bouquets. Among Grape Hyacinths several varieties are attractive, notably *Muscari botryoides*, *album*, *pallidum*, and *neglectum*. The rich blue flowers of *Iris biflora* are now abundant, as are also those of the dwarf-growing *I. pumila*. *Epimedium* in variety are flowering freely in sheltered situations, and the large-blossomed Thrift (*Armeria cephalotes purpurea*) is beginning to open its rosy-purple blooms. The bright blue flowers of *Gentiana verna* may now be seen even in Loudon, at Pine-apple Place, and the white Wood Lily (*Trillium grandiflorum*) is in full beauty in places where it is sheltered from the cold east winds which we have lately had. The bright scarlet flowers of *Anemone fulgens* may still be gathered, and several of the Columbines are fast coming into flower. *Aubrietia Hendersoni*, a bright purple kind, is now very attractive. To these may be added *Helonias bullata*, *Saxifraga palmata*, and several varieties of *Orobus*; the *Alliums*, too, are throwing up strong heads of bloom, as are also Globe-flowers, Primroses, Pansies, and Forget-me-Nots.

S.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Flower Garden.—Where a flower garden is filled during the winter with spring-blooming plants such as *Violas*, *Daisies*, *Aubrietias*, *Arabis*, and the like, there is generally a reluctance to move them, which results in the summer-bedders being delayed in planting, through which the effect they ought to produce is considerably diminished, as if not planted at the proper time (even with the best attention afterwards) they fail to get properly established, and, consequently, there is a great lack of flowers in the garden until the season is far advanced. Without going to this extent, the spring-flowering plants may be allowed to remain wholly or in part until within a few days of the time when the summer-bedders should be planted. Where shrubs have been used for beds through the winter, these should be taken up at once and consigned to their summer quarters in the reserve garden, digging over the beds and adding manure in proportion to the impoverished state of the ground, and the species of plant with which each individual bed is to be filled. Those plants of vigorous habit that are more disposed to the production of foliage than flowers, when planted in good soil should have comparatively little manure added to the soil in which they are grown; while others of a less vigorous character must have the ground made richer. In dry, sandy soils in which many bedding plants, especially *Calceolarias*, are with difficulty kept in a healthy condition through a dry summer, manure of a cooler, moisture-holding nature, such as that obtained from cow-sheds, should be used in preference to the drier stable-manure, but whichever is used, let it be sufficiently decomposed; cow-manure particularly, before digging in should have lain in a heap for twelve months, and during that time ought to have been turned over several times; when fit for use it should be nearly black in colour, for if in a crude state, the roots of any plant would not enter it. For strong, heavy soils, there is nothing better than the material of which last year's hotbeds were made, with which a good quantity of leaves has been mixed; this, from its light, open nature, helping to correct the close, adhesive character of the soil. In cases where the beds have been in existence for many years, and during the time have received no further assistance than an annual dressing of manure, this in time ceases to be effective. Summer bedding plants are rapid growers, gross feeders, and may be termed a very exhausting crop, and if spring-flowering plants be put into the ground directly they are removed, the nourishing properties of the soil will be still further lessened. In such cases it will be necessary at times to either wholly or partially renew the beds with

new soil, which will be found to have a marked effect on the flowering capabilities of the occupants. There have been few springs in recent years wherein the ground was so cold and little calculated to promote growth in tender or half-hardy plants as the present, and it will be much better to defer a little later the planting of everything that cannot well withstand cold. If put out before there is sufficient warmth in both the soil and atmosphere they retrograde instead of progressing, getting into a stunted condition from which it takes a considerable amount of hot weather to remove them; on such seasons beds that are not planted until the end of May are often much forwarder by midsummer than those that were filled sooner. Where the carpet system of bedding is adopted, *Sedums*, *Pyrethrums*, and the hardiest *Echeverias* should be at once put in their places, leaving the other portions that are to be occupied by tender subjects, to be completed later on. *Centaureas* and *Calceolarias* also may now be planted, as there is rarely any frost after this time likely to injure them; where the ground is at all dry see that the *Calceolarias* are well watered when they are put out, and that they never afterwards through the summer are allowed to get dry; the cause of their dying off suddenly during the summer is generally attributable to the roots having become dry. *Pelargoniums*, *Verbeucas*, *Heliotropes*, *Ageratums*, *Petunias*, *Lantanas*, *Lobelias*, and *Mesembryanthemums* should have the lights of the frames they occupy tilted night and day when there is no appearance of frost, or drawn completely off during the day in fine weather, so as to harden them in a way that they will receive no check when fully exposed in the beds. If well supplied with water so as to keep them growing, they will be better than if planted out for ten days from this time. *Alternantheras*, *Coleas*, and *Iresines* should be kept in a growing temperature with enough air to make them stout and robust; there is nothing gained by planting these before the end of the first week in June; where there is a deficiency, they may still be propagated. Plants of a sub-tropical character, such as *Aralias*, *Abutilons*, *Hamea elegans*, *Ficus*, *Chamaepeuce*, *Wigandias*, *Cannas*, and any of the greenhouse species of *Palms* that are used for summer decoration out-of-doors, should always receive especial attention, so that they may be gradually and sufficiently hardened before being planted out; where this is not effectually done before they are fully exposed, in a few days they assume a bronzy-yellow, sickly appearance, which it is impossible afterwards ever to set right during the season. It is most desirable to intermix subjects possessing handsome leaves with fine, distinct habit amongst ordinary bedding plants, but they should always present a healthy appearance, otherwise the object in view is defeated. *Dahlias* should be kept where they will gradually develop until the time they are planted out at the end of the month; to ensure this they must not be confined in too small pots, for if the roots become matted for want of room, the stems get stunted and hard, after which they never are equal to plants that have not been in that state.

Gladioli.—Another planting of these should now be made; they will come in to succeed the earliest, and if a few bulbs be kept out of the ground until the last week in the month and then planted, they will bloom late and be very useful for greenhouse and conservatory decoration; they should be lifted and potted about the end of September. The bulbs are the reverse of being benefited by this late planting; consequently it is not advisable to use scarce or dear kinds for this purpose, many of the common, inexpensive sorts being just as good for general display. The objection to planting these most beautiful hardy plants in conspicuous places in beds by themselves is that they are late in coming into flower, till which time the beds are unattractive, not harmonizing well with others in flower; by sufficient forethought this may be obviated if the *Gladioli* be planted somewhat further apart, say 15 in. each way, which will leave room for the intervening spaces to be occupied by *Violas*, *Pansies*, *Palox Drummondii*, *Asters*, *Mignonette*, dwarf *Tropæolums*, or anything of similar character, not planted too thickly so as to interfere with the growth of the *Gladioli*.

The Reserve Ground, that is to be occupied during the summer months by spring bedding plants that have already done duty in the flower garden, should be prepared for their reception, so that there may be no delay in putting them in when taken out of the beds, for if their roots be allowed to dry up before replanting they suffer considerably. The soil is no better for being very rich, as such plants as those under consideration, when frequently moved, are best not grown too luxuriantly, but it ought to be of a light nature, so that the different subjects grown can be taken up without much breakage of their roots; if it be naturally heavy, it will be improved by the addition of sand, leaf-mould, exhausted tan, or anything of a similar nature. Plants that are used for spring bedding should not be too large, as they are much more effective when small and employed in greater numbers; where any are becoming too large, it is better to divide them at the time of their

transfer to the reserve ground than in the autumn when they are being put in the beds. Supply them with water as required until they get fairly into growth. Amateurs with either large or small gardens should have a corner set apart for this and similar purposes. Here also ought to be turned out bulbs that have been forced in pots, such as Crocuses, Tulips, and Narcissi, and any of a similar character, which, after having another year's growth, will have recruited their strength from the exhausting influences of previous forcing; thence they can be transferred to the herbaceous borders.

Celery.—It will be well, if there be sufficient ground at liberty, to make the whole of the Celery trenches ready at once, as this will give an opportunity for growing Lettuces or Spinach on the ridges during the summer, which will be cleared off before the earthing-up process commences. Ground on which has been grown Winter Broccoli, Kale, Winter Spinach, or Turnips, will be suitable for Celery. Under the impression that it saves time, the ground is often cleared of the crop by which it has been occupied, and the trenches opened without digging the spaces between; this is an objectionable practice, and in the end involves more labour, as the nudging ground, covered up by the soil of which the ridges are composed, is in a hard, partially-imperious state, through having remained undisturbed during the autumn and winter, and when it has to be used for earthing up the Celery, it requires a great deal of breaking to make it sufficiently fine. The trenches may be made wide enough for two rows for the earliest crop that is intended for use before winter; but all that is wanted to stand after Christmas will keep much better confined to single rows, as when soiled up, the ridges are much more pointed at top, throwing off the water better than it is possible to make them where double rows are planted.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

May 14.—Potting winter-flowering Carnations, Musk, and shifting Egg-plants into 10-in. pots; also re-potting young Cyclamen plants. Basking Phalanopsis. Sowing French Beans in pots for transplanting under glass covers and under the protection of a south wall; also planting Seakale thongs, Violets, and more Lettuces. Pricking out main crop of Celery into cold frame. Getting manure ready for Mushroom bed. Digging and raking flower borders not already done. Thinning Grapes as fast as they are ready. Turning walks in flower garden in order to kill weeds and give the gravel a fresh appearance. Sticking Peas that are above ground. Hoeing among Potatoes, Carrots, Beet, and Herbs, and digging out more Celery trenches.

May 15.—Potting and staking old Fuchsias, and shifting Balsams into flowering-pots. Potting off Syon House Cucumbers. Re-potting *Dendrobium speciosum* and *thyrseiflorum*. Sowing Marjoram, Sweet Basil, Neapolitan Cabbage and Paris White Cos Lettuces. Planting Lily of the Valley, Tree Carnations, and Anne Boleyn Pinks; also beds of Asparagus, and more Cauliflowers and Lettuces. Putting in cuttings of *Clerodendrons*, *Aphelandras*, and Fuchsias. Putting Azaleas in second Vivary to make their growth, stopping shoots of late Vines, nailing leading shoots of Apricot and Peach trees out-of-doors. Plunging *Rhododendrons* and Lilacs. Raking Rose beds.

May 16.—Potting Cockscombs that are showing bloom; also other kinds of Celosia. Potting off Legg's Melons, small Begonias, and other fine-foliaged plants. Placing *Dendrobium Falconeri* and *Aërides roseum* on blocks. Sowing Primulas, Cinerarias, Calceolarias, and Globe Amaranthus; also Mignonette under verandah and round Rose trees. Planting Sweet Briers, *Dentzia scabra*, *crenata*, and *gracilis*, *Dicentra spectabilis*, and April-sown Lettuce. Putting fresh cinders on East Indian Orchid-stage. Watering Melons, Violets, and young Celery plants. Stopping all shoots on Fig trees. Putting *Alternantheras* for bedding out in cold pits to harden. Earthing up Cauliflowers. Keeping orchard-house rather moist. Thinning fruits of Apricots for the first time. Tying Peach trees.

May 17.—Shaking out and re-potting Cattleyas that are in bad health. Potting Primulas and a few Fuchsias intended for large specimens; also Phlox Drummondii. Sowing Picotees, Mandevillas, Zinnias, Japanese Maize, and Tropæolums of different sorts for baskets; also sowing Cannas, Sweet Peas, Ten-week and Intermediate Stocks, Wallflowers, and Champion of England and Veitch's Perfection Peas. Planting Pansies, Lavender, Gladioli, Stocks, and Asters. Setting Melons that are in flower. Watering and mulching all Apricot trees. Filling Melon-pit and putting in ridge of soil.

Earthing up Vegetable Marrow ridges. Potting Standard Chrysanthemums. Pulling up spring annuals that have ceased flowering. Giving seed-beds a little guano. Thinning Carrots and Turnips. Putting Castor-oil plants for bedding into cold pits. Taking up Tulip and Hyacinth bulbs from flower-beds.

May 18.—Potting Azaleas, Daturas, and a few large Scarlet Pelargoniums for the autumn decoration of the conservatory. Potting off seedling Humeas, Portulacas, and Balsams. Potting *Calanthe veatifolia*. Sowing *Amarantus melancholicus* and *elegantissimus*, and pots of Mignonette. Washing Vines for red spider. Digging land for Turnips and Broad Beans. Manuring places in flower garden in which to plant Purple King Verbena. Hoeing among all growing crops, and staking Peas and Scarlet Runners that require it.

May 19.—Potting *Hedychium Gardnerianum*. Sowing Perpetual and Round-leaved Spinach, Broad Windsor Beans, and more Lettuces, Mustard and Cress, and Radishes. Planting hardy Azaleas in American garden; Sweet Peas raised in pots in well-manured ground; also planting Tritomas, a frame of Sweet Basil, and putting out Cauliflower plants in manured trenches. Re-filling and planting flower vases. Cutting down Sage plants. Clipping *Cerastium tomentosum*. Bedding-out Feverfew, and tying Pelargoniums and Fuchsias. Earthing-up Potatoes. Gathering caterpillars from Gooseberry trees. Putting all bedding annuals out-of-doors. Taking down and stowing away wall tree protections. Dusting Carrots with lime and soot.

Notes on Hardy Flowers.

AURICULAS.—The great bulk of the show varieties should now be in bloom, and some of the earliest will be shedding their flowers; the latter require water only sparingly. If some seed be required, a few of the very best kinds should be set aside for the purpose, and should not be allowed to carry more than three or four pods. In order to have the seed of the fine-edged Auriculas as true to character as possible, the flowers should be kept away from the Alpine varieties. Some of our most successful cultivators will not grow a single Alpine Auricula for fear of tainting their strain. As the prevailing cold, north-easterly winds have necessitated keeping the plants somewhat close, they are very apt to become infested with green fly, and require to be cleansed from it. An artist's brush passed over the leaves occasionally will be found of service.

CHRYSANTHEMUMS.—The cold, retarding weather is showing its effect on Chrysanthemums in pots, and they need all the encouragement possible just now. The plants that are at all backward should be placed in the greenhouse, or be kept in a cold frame and somewhat close till they get a good start; the stronger and more forward plants need not be kept so close, but they should be sheltered from cold winds, and on no account be allowed to suffer from want of water. Stopping must be done as required; now is the time to lay the foundation of good blooming plants in the autumn, and vigilance should be the motto of the cultivator.

CLEMATIS.—All are now making a rapid growth, and attention to training is necessary. In conservatories the shoots of the spring-flowering varieties, whether the plants be in pots or trained to walls or pillars, should be so tied in as not to hide the buds that are already expanding; on no account cut away these shoots, as they will yield flowers next year. The stronger summer-blooming varieties need to be so trained as to fill the space required to be covered: the better the growing shoots are displayed, the finer will be the show of bloom in July. As soon as hot, dry weather sets in, mulch with manure, and give occasional waterings with manure-water. Messrs. G. Jack, man & Sons, of Woking, are now exhibiting Clematises at the Royal Botanic Gardens, where all the best varieties can be seen to advantage.

DAHLIAS.—The young struck plants should be potted on as required, and kept in a frame to make growth. It is scarcely safe to plant out till the first week in June, and that gives the plants time to grow to a good size, and become well hardened. The dwarfier and more bushy the growth in the young plants, the better are they for planting out. The ground intended to be planted with Dahlias should be trenched and a good dressing of manure applied.

DAISIES.—Beds of double Daisies are now in the full flush of their beauty, and their effectiveness is prolonged if the beds be occasionally examined and the dead flowers removed. This facilitates a succession of bloom, besides tending to keep the beds smart in appearance. The new variegated White Globe should be made a note of for use next spring; it is very fine indeed, and is superior to all the variegated forms bearing white flowers.

DELPHINIUMS.—Strong plants which have been in the ground all the winter will now be greatly aided in their growth, if the soil be loosened about them and receive a mulching of short manure and

leaves. A bed of the finer varieties should now be made; and this will be found an effective manner of growing these fine perennials, as it enables the several kinds to be compared the more readily. A deep loam well enriched with manure and leaf-mould makes an admirable bed, and as the plants come into flower, they are materially assisted by a surface mulching of manure. There are now a number of beautiful new varieties well deserving cultivation.

PYRETHRUMS.—These fine hardy decorative plants are commencing to grow, and as snails and slugs are apt to eat the foliage they should be looked after. The enjoyment of all such plants is enhanced by having a bed filled with various sorts, and now is a good time to make one. Those who have limited garden space might grow a few Pyrethrums in pots; they are easily managed, and are well suited to a cold greenhouse. It is a mistake to overpot them, in fact, many plants are thereby spoiled.

POLYANTHUS.—Choice varieties in the open ground will be greatly benefited by having the flower-stems removed, adding a top-dressing of some good soil. Any good varieties in pots may be ranged under a north wall on an ash bottom, or planted out in a prepared bed for the summer. The Gold-laced varieties, being much later, are now in full bloom. The named kinds are of somewhat delicate constitution and need special treatment. To yield good flowers they should be well established in pots; and when they have ceased flowering they also can be planted out. Those potted in the spring should remain in the pots all the summer, and be kept in a cool moist place. In saving seed from any particular variety, be content with two or three pods, and do not exhaust the plants by overtaxing their energies. A sowing may be made as soon as the seed is sufficiently ripe.

PEONIES.—These are now growing strongly, and should have every encouragement. Towards the middle of the month the flowers will be expanding, and as they invariably do so at a critical time when frosts may be looked for, a little protection should be given where possible. Some cultivators adopt the practice of syringing just before the sun gets on the flowers.

TULIPS.—Beds of these glorious flowers look uncommonly well this season, that is, where the beds have received adequate attention. The flowers will be late this season, and what the plants really require are warm sunshine and soft genial rains. A mulching with manure will do good and greatly assist the plants. They must be protected from the wind, as the flower-stems are apt to be snapped off.

VERBENAS.—Struck cuttings of Verbenas should be grown on as quickly as possible, and hardened off for going out into flower-beds at the end of the month. A little seed may now be sown in a gentle bottom-heat, to supply a late batch of flowering plants. D.

Town Conservatories.—I have seen a conservatory belonging to Mr. Anderton situated amid the smoke and dust of this town. I have visited it from time to time this spring, and when everything was cold and bleak without it was one mass of charming flowers, consisting of Hyacinths, Tulips, Chorozemas, Azaleas, Spiræas, Deutzias, Lily of the Valley, Roses, Rhododendrons, and many more, which rendered it different from anything of the kind in this township. Such a house, indeed, is more like a flower show than a conservatory. There are scores of houses that do not deserve the name of conservatory, inasmuch as so far as flowers are concerned I could bring them all away in my hand. What, however, one man can do under difficulties, so ought another; we cannot all live in the pure air.—JOHN WATSON, *Bradford*.

The Hull Botanic Gardens.—Mr. Niven, the curator of the Hull Botanic Gardens, lectured on them at the Royal Institution, Hull, on Saturday afternoon, before a large audience, Dr. Gibson presiding. In a pleasing conversational manner, the lecturer told the story of the origin of the present garden in 1811, and of its increase in the course of time from two acres to six. He stated that when first opened the garden was, so to speak, quite in the country, there being few houses within a considerable distance. He spoke of the connection of Messrs. Watson, Kirby, Spence, Heyworth, and Parker in the early history of the garden, and then coming down to twenty-five years ago, the period when he became curator, he referred to the wretched condition of the garden at that time, and said that the place more resembled a hayfield than a botanical institution. He alluded to the visit to Hull at that period of the British Association, in anticipation of which the scientific men of Hull bestirred themselves, and the garden was all at once resuscitated. He traced the many vicissitudes of its history from that time, and alluded to the laudable efforts of the late Mr. Moss, Alderman Bannister, and others to sustain and improve its character, to the gradual diminution of its usefulness through obvious and irremediable causes, and

then to the present intentions of the proprietors with regard to its sale, and next to the projected new garden, the plans for which he exhibited, lucidly explaining their many interesting details.—At the close, the chairman complimented Mr. Niven on his lecture, and remarked upon the great attention with which his remarks had been listened to, and upon the motion of Mr. Micks, a hearty vote of thanks was accorded to the lecturer.

Climber-covered Trees.—Last year, while grubbing up an old shrubbery for alterations, my men carelessly cut through the main root of a large Wych Elm, and the long dry summer following the accident killed the tree. Will you suggest some good climber that would not only get up the trunk but also cluster in the branches? Will anything grow successfully besides Ivy—there being many other trees round it, though it stands open to the south? I am loth to cut it down, and fancy it could be made ornamental.—W. A. [There are many plants suitable for your purpose, but the following require but little trouble after they are once planted. Clematis Vitalba or common Virgin's Bower would do well under such conditions, as would also the Virginian Creeper, especially if the soil at the foot of the tree where it is to be planted be enriched with a barrow-load or two of well-rotted manure. Either green-leaved or variegated Ivies would, of course, do well, but for graceful summer tree drapery we know of nothing equal to the hardy climbers just named.—ED.]

The Late Show of Orchids held at South Kensington.—I exhibited at the Royal Horticultural Society's show on the 2nd inst. a collection of Orchids, for which the Floral Committee awarded me a large silver medal; but by some mistake your report appears to have given Mr. Bull, who had a small collection placed close to mine without sufficient separation, the credit of exhibiting my plants. I had forty-five Orchids in flower, amongst them the *Odontoglossum Roezli*, which you noticed on April 4, but which now has twenty-two expanded flowers, and several buds; also a large plant of *Cypripedium caudatum* with seven spikes—ten expanded flowers and five buds; and *Odontoglossum novium* with eight spikes. The *Phalcnopsis Luddemanniana*, *amabilis*, and *grandiflora*, and the *Cypripedium niveum* were also mine.—J. G. HEBURN, *Sidcup Place, Kent*.

Protection of Fruit Trees in Pots.—Mr. T. Francis Rivers writes to us from Sawbridgeworth on this subject as follows:—"The disastrous frosts of the past week amount nearly to a national calamity, but they will have the effect of stimulating fruit growers to the introduction of schemes for the better protection of fruit. Glass-houses are, of course, the most efficient protectors that can be devised, but they are not within the reach of all. I have, I think, found a method that is within reach of most persons at a small expense. Having observed that tender plants in pots may be preserved during severe frost by laying them on the ground and covering them with mats or canvas, I potted several Pear trees last autumn; they have stood through the winter without protection, and were covered with stout and well-conditioned blossom. When the dour east winds gave notice that a heavy visitation of frost might be expected, the trees were placed in a position to occupy a small compass when laid down. On the evening of Wednesday week, a dozen trees of the finer sorts of Pears, each capable of bearing three or four dozen fruit, were simply laid down and covered with mats. I am happy to say that they have successfully passed through the heavy ordeals of the frosts of Wednesday, Thursday, and Friday, the mats being removed during the day, the trees remaining recumbent. After the necessity for protection is passed, which we may fairly hope will arrive before midsummer, the pots should be plunged in a border over the rim and the surface of the soil covered with loose manure. Little water will be required, and if the sides of the pots be perforated to allow the emission of roots into the surrounding soil, the trees will be entirely self-supporting, and may remain in the same position until the next inclement spring returns. The plants when required will submit to the excision of the roots outside the pot without injury. A few dozen Pear trees will give a good supply of fine fruit, and with good cultivation will amply reward the cultivator."—"Times." [It is much to be desired that some really efficient means of protecting grown Pear trees be devised. On walls, a wide temporary coping does all that is required, but we have never seen any really efficient and inexpensive means of protecting pyramid trees.]

Figs Under Glass.—I shall be much obliged for some practical advice upon the management of Figs planted in the borders under glass with and without artificial heat. I am chiefly doubtful as to whether, when Figs are forced, the second growths should be stopped. I take it for granted that the first shoots should be stopped after three or four leaves have been developed. It seems to me doubtful whether the shoots of Figs that are not forced should be stopped at all, lest the young growths should fail to ripen.—A SUBSCRIBER. [In the case of Figs forced under glass, the stopping of the shoots

when three or four leaves have been developed is the practice generally followed with both the first and second growths. The proper thinning-out of the shoots where too thickly placed is likewise another operation that needs attention, for the Fig requires plenty of light and sun-heat for the fruit to be high-flavoured. The best crops of Figs are produced when forced under glass with artificial heat, where the roots of the trees in the borders are confined and under control, so that a surface-dressing of manure can be given them at times, as well as liquid manure when swelling their first and second crops. In managing Figs under glass, but without being forced, the stopping of the shoots is likewise necessary, and if the roots be circumscribed in the border, there will be no danger of the wood not ripening. Where the roots of the trees ramble over large rich borders the young shoots get too gross and succulent, and so prove unfruitful from the wood not being properly ripened.—WILLIAM TILLERY, *Wolbeck.*]

Drury Lane Garden.—A correspondent writes:—"Last week it was announced that a burial ground long since disused in Drury Lane had been formally opened as a garden by the vicar and churchwardens of the parish of St. Giles for the use of the surrounding inhabitants. The gardens had been neatly laid out, planted with shrubs and deciduous trees, and furnished with seats similar to those in use on the Thames Embankment. However, on the evening after the opening, the churchwardens went down to see how the garden was appreciated, when they witnessed such a scene of disorder, wanton trampling on the ornamental grounds, and, in some instances the tearing up of plants and shrubs, that immediate orders were given to have the gardens cleared and the gates closed until further notice." [No very great damage was, however, done. In forming such gardens at first it is much better to begin with trees only, which cannot be easily injured; flowers, or Grass, or shrubs, can only be grown with great difficulty and expense in such an atmosphere; besides, playgrounds are more needed than gardens. A gravelled space with trees would be a great gain in many densely-populated districts; it might also be a beautiful feature amidst buildings.]

Loam and Peat in Italy.—Although loam is so extensively employed in plant culture in England, it is not so indispensable as is often imagined. On the Continent it is comparatively but little used, and in many horticultural establishments, where plant culture is carried on with great success, loam is scarcely known. There the staple articles for the majority of soft-wooded plants are well-rotted manure and thoroughly decomposed leaf-mould. In France the former is called *terrain*, and if properly prepared, it is admirably adapted for the production of all quick-growing plants. I have myself used it for Gloxinias, Achimenes, Cinerarias, Pelargoniums, Dracenas, Ficus, and many kinds of Palms, with the best results. It should, however, be at least four or five years old, and turned over until brought into the consistency of mould; in this way it can be used even in a pure state for many plants with perfect safety. If Mr. Powers have not this at command, he could probably obtain it and the leaf-mould from a nurseryman in his neighbourhood. Hard-wooded plants of comparatively slow growth, such as Deutzias, Cytisus, Oranges, &c., are the better for a mixture consisting of some more tenacious soil; probably Mr. Powers could obtain some burnt earth, which is so much used in South Germany, and which is probably also known to the Italian plant-growers; with these ingredients at hand loam may be dispensed with. A substitute for peat is not so easily obtained; there are, however, but few plants that demand its exclusive use—of these the principal are Heaths, Epacris, and some other New Holland plants. Many tender stove plants, for which pure peat is commonly used, will succeed in leaf-mould, taking care to pot lightly, and ensure perfect drainage.—J. CORNHILL, *Byfleet.*

NATIONAL AURICULA SOCIETY'S NORTHERN SHOW.

This took place in the Town Hall, Manchester, on Friday, April 27, and though owing to the lateness of the season several exhibitors were prevented from competing, there was nevertheless an interesting display, the specimens staged being on the whole very good. The leading class was for six varieties, one at least of each of the four sections into which Auriculas are divided being shown. Of these the best collection came from the Rev. F. D. Horner, Kirkby Malzeard, who staged fine examples of green edge—Booth's Freedom and Trail's Anna; grey edge—George Lightbody, and Lancashire Hero; white edge—Smiling Beauty; and self—C. J. Perry. Second, Mr. B. Simonite, Rough Bank, Sheffield, showed green edge—Talisman and Prince of Greens; grey edge—Lancashire Hero and George Lightbody; white edge—Frank Simonite; and self—Spalding's Metropolitan. Other fine flowers shown in this class were green edge—Imperator and Oliver's Lovely Ann; grey edge—Ringleader; white edge—Richard Heady, True Briton, and Taylor's Glory; self—Pizarro and Lord of Lorne. In the class of four varieties, one in each

class, the Rev. F. D. Horner was again first with green edge—Anna; grey edge—George Lightbody; white edge—John Simonite, a new variety; and self—Meteor Flag. Second, Mr. B. Simonite, with green edge—Lovely Ann; grey edge—William Bradshaw; white edge, John Simonite; and self—Pizarro. Some other good flowers in this class comprised green edge—Barlow's King, a good old variety, sometimes caught in fine condition; grey edge—Rev. George Jeans and Privateer; and white edge—Boud's Perfection. In the class for pairs a goodly number of plants were staged, the best being grey edge—C. E. Brown; and white edge—Smiling Beauty, from the Rev. F. D. Horner. Next came grey edge—General Bolivar; and self—Pizarro, from Mr. T. Mellor, Ashton-under-Lyne. Third, C. Roys, Esq., Rochdale, with green edge—Prince of Wales; and dark self—Ellen Lancaster. In the classes for single plants a great number of plants were staged. The premier green edge was Lancashire Hero, a grey-edged Auricula properly, but which sometimes comes green, when it can be shown as such; then followed in the order of merit Imperator, George Lightbody, Colonel Taylor, Prince of Greens, and Seedlings. The premier grey edge was George Lightbody, and following this came Lancashire Hero, Dr. Horner, Samuel Barlow, C. E. Brown, General Bolivar, Complete, and Alexander Meiklejohn. In the white edge class that lovely flower Smiling Beauty was awarded the premier position; and following this came Alma, Beauty, Smith's Ne Plus Ultra, Richard Dean (a very promising seedling raised by Mr. B. Simonite), John Simonite, Fanny Crossland, and Ann Smith. The premier self was Othello, finely shown; then followed Pizarro, Ellen Lancaster, Meteor Flag, Lord Clyde, Mrs. Sturrock, Lord of Lorne, Sims' Eliza, and Bessy Bell. Prizes were also offered for the best Lancashire Hero, which was won by the Rev. F. D. Horner; the prize for the best grey edge was awarded to George Lightbody, shown by Mr. B. Simonite; and the best green edge, was found in Booth's Freedom, shown by the Rev. F. D. Horner. Alpine Auriculas made a very pretty display, and in the north the competing varieties must all be edged or shaded flowers, selfs not being admissible. The best four were shown by Mr. R. Gorton, Eccles, and consisted of Diadem, Ovid, Beatrice, and Dolly Varden; Mr. S. Cooper, of Timperley, came next with the three first named and Dazzle. Other good Alpines were Mauve Queen, conspicuous, Neatness, Fair Rosamond, George Lightbody, and Elcho. But little need be said respecting the Polyanthuses. Only the old Gold-laced varieties were permitted to compete, and of these the display was decidedly meagre; the leading varieties were Cheshire Favourite, Exile, Lord Lincoln, President, and George the Fourth. D.

THE WIND AND THE WAR.

WHAT is that white on yonder trees?
Pear-blossom. Ugh! It might be snow;
So bitter, hard, the eastern breeze;
And the thermometer so low.
I see white petals of the Pear,
But Apple trees of pink are bare.
Late Apple, due in early May,
And Lilacs shrink from coming out.
A haze bedims the orb of day,
And influenza flies about.
And not one Jack, in wonted green,
On this bleak May-day has been seen.
Bees keep their hives, too wise to hum
In such hard times from flower to flower;
Cuckoo and nightingale are mum,
In holes and crannies swallows cower,
Wondering where spring-time can have fled,
Till cruel May frost nips them dead.
May, more than commonly severe,
Too well this woful east wind suits,
That comes the opening leaves to sear,
And shrivel up the swelling fruit.
Two bitter things—nigh on a par—
Are eastern wind and Eastern war.

—"Punch."

QUESTIONS AND ANSWERS.

Names of Herbs.—Having been busy this month renewing our bed of Sweet Herbs of which we have a good store for supplying the Blind Asylum (particularly with nasegays), I feel sure that there are several possessing a sweet smell that we require to complete our collection. Can any of your readers tell me what is "galingale" and "setuale," both mentioned by Spenser in his charming description of a "gay garden" and "of everie flower and herbe there set in order?" *Fide* "Maipotimus; or, the Fate of the Butterflie," p. 195.—F. J. HORG, *Wardie Lodge.*

Hybrid Primroses.—Would you kindly inform me whether a hybrid between a Primrose and a Cowslip is of frequent occurrence or not, as I have come across a wild plant having all the characteristics of both? Its leaves are short, like those of the Cowslip, but the blossom is that of three Primroses on one thin stalk. The colour is just intermediate between the two.—W. T. B. *Oxford.* [Your plant may possibly be the Common Oxlip, which is, according to Darwin, a natural hybrid between a Cowslip and a Primrose, and which has the leaves of the former and the flowers of the latter, borne Cowslip-fashion several together on a tall scape.—Ed.]

Polyanthuses.—"For Mr. William Cudwell, Wallingford" (see p. 367), read "Wallingford Street, Wantage."

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES OF THE WEEK.

ODONTOGLOSSUM VEXILLARIUM.—There is a large group of this in beautiful bloom in Mr. Bull's nursery at Chelsea. Seen in all stages of blossom, and in considerable variety, this plant here proves itself even more lovely than it was thought to be at first. Although the flowers are so large, they are so delicately coloured that when seen in quantity, gracefully floating over the light green leaves, they call to mind coloured Primroses on a mossy carpet in a copse, or an Alpine meadow jewelled with flowers, rather than effects usual in Orchid-houses.

IMPORTED BANANAS.—At one time—and but half-a-dozen years ago—these were little more than a curiosity in the market; now they are in almost general request, and their use is spreading greatly. They usually come to the London market from Madeira. When they arrive in a green or unripe state they are kept in warm cellars, where they ripen well, before being offered in Covent Garden.

PELARGONIUM DUCHESS OF BEDFORD.—Messrs. Beckwith, Tottenham, send us blooms of this beautiful white Pelargonium, which is now also beginning to be in demand in Covent Garden. It is a beautiful decorative and table variety, raised from Digby Grand, with fringed petals, two delicate dots of colour on the upper petals, the rest being pure white. It is very early, dwarf and firm in habit, free in growth, and under good cultivation makes a sturdy free-blooming plant in one season.

PRIZE PLANTS AT SLOUGH.—On Monday last, Mr. Charles Turner extemporised an exhibition of many of his well-grown show plants. Many noble specimens were in the nursery ready to start for various exhibitions on the following day. These made up a "show" of pot Roses, Pelargoniums, and Azaleas such as could not elsewhere be seen. The long Rose-house, with its avenue of enormous Rose "trees" in pots, was especially remarkable for its beauty. From it came the plants which were so much admired during the past week at the Crystal Palace, the "Botanic," and Manchester shows. The proceeds of the exhibition were given to the Parish Church Enlargement Fund.

THE PLANES IN THE GREEN PARK.—The relief of some of these by thinning was effected during the winter, and the trees promise to afford a noble shady grove for one side of Piccadilly in good time. It is to be hoped the rest will shortly be thinned also. A very fine line of young trees has also been planted alongside the drive in Hyde Park. They are planted at distances which will admit of their becoming stately trees, and affording pleasant shade.

LAMARQUE ROSE IN COOL HOUSES.—This is a lovely Rose for planting out in a greenhouse or any cool house; a plant put out in one of the cool houses in the Royal Nurseries, Slough, now bears a crop of delicate white Roses overhead. It is very free and very graceful, and the buds are valuable from having a good clear hue from their earliest appearance. It forms a charming contrast to *Maréchal Niel* planted out in the same house.

MAGNOLIA FUSCATA.—Few plants have flowers that yield so strong a scent as this variety of Magnolia, sometimes called in nurseries *Fuscata pinnata*. One partly expanded blossom on a small plant of it in the large conservatory at Pine-apple Place literally fills the house with fragrance. When the large numbers of other flowering plants that occupy the same house are taken into account, it is surprising that the scent of this one small blossom should be so markedly apparent.—C. S.

THE TREES OF PARIS.—François Miron, Administrator of Public Works in the reign of Henri IV., was the originator of planting trees in the streets and public squares of Paris. He commenced by planting a distance of 6000 ft., and paid a third of the cost out of his private purse. There was lately to be seen in the courtyard of the Deaf and Dumb Asylum, Rue Saint Jacques, a large Elm, perhaps one of the finest of its kind in Europe. Its height was 50 metres, and its circumference, just above the ground, 5 metres. This was the last tree planted by him. Since that time the plantations of Paris have multiplied. The trees planted on the interior Boulevards are estimated at 91,137; those of the Boulevards around Paris, 11,411; on the quays, 4,706; in the avenues, 6,872; in the squares, 3,659; in the streets, 1,864; in the Champs Elysées, 9,555; on the Esplanade of the Invalides, 2,040; near the slaughter-houses, 1,510;

near the granaries, 994; in the cemeteries, 3,826; in the playgrounds of the Communal Schools, 1,130. The right bank of the Seine possesses 29,536 trees, that of the left, 22,642. Although trees of less than fifty years of age are far more numerous, there are, nevertheless, 12,500 aged from seventy-five to 100 years and upwards.

IXIAS IN COVENT GARDEN.—Either in beds, out-of-doors, or in pots for conservatory decoration, *Ixias* are very effective, and their blooms are also valuable in a cut state. Large quantities of a bright scarlet kind, highly appreciated by bouquet makers, have been coming into Covent Garden Market for weeks past, from the Channel Islands.—S.

NARCISSUS POETARUM.—Mr. Ware sends us blooms of this pretty *Narcissus*, in which the whole of the cup is bright orange. Every lover of gardens must be pleased to see how much sought after the various forms of the Poet's *Narcissus* now are.

HYDRANGEAS IN POTS.—There are many plants of these now growing in the Clapton nurseries in 4-in. pots, with heads of bloom 15 in. in diameter. We have never seen such large heads springing from short single stems.

ROSE SHOW AT THE ALEXANDRA PALACE.—We hear that a large Rose Show will be held at the Alexandra Palace on Saturday, 30th June, for which a liberal schedule is being prepared. The schedule will shortly be ready, and may be obtained on application to Mr. John A. McKenzie, 1 and 2, Great Winchester Street Buildings, E.C.

GRASS IN LONDON.—The "Echo" calls for more Grass in the garden in Drury Lane:—"Many a country nobleman throws open his park to his neighbours, and they do no injury. They sit or amuse themselves under the trees. He knows their habits of life and acts in accordance with them. Gentlemen of the Vestry, do the same! Give your little subjects a little more Grass and a trifle less gravel, and you will find the duties of the 'imposing attendant' considerably abridged and your own pleasures greatly augmented." We merely quote this to point out that growing Grass in such a position is wholly impracticable. Trees, and shade, and seats are all that are really possible at present in such positions. While the trees are young, however, it is desirable to furnish such places with other materials temporarily.

THE BANKSIAN ROSE.—A plant of this Rose is now in full bloom here. It is trained against a wall facing the south, and it is so distinct and lovely that every one who has accommodation for a climbing Rose should have a plant of it. Its blossoms, which are lemon-coloured and produced in clusters, remind one, as far as size is concerned, of those of a double Cherry; yet they possess the very shape of the most perfect Rose. The choicest flowers indoors are not more valued in a cut state than these, and an ordinary-sized plant will produce handfuls of flowers for weeks in succession. This Rose should be pruned as soon as it has done blooming, when the new wood formed during the autumn will bloom luxuriantly about this time next year.—A NORTHERN GARDENER.

DALE TESTIMONIAL.—As would be seen by an advertisement in our columns last week, a committee has been formed for the purpose of presenting a testimonial to Mr. Joseph Dale, of the Middle Temple Gardens. Mr. Dale, so long ago as 1811, began to ornament the gardens of the Middle Temple with *Chrysanthemums*, and his annual exhibitions of them show what may be done with that flower by judicious treatment, even in the heart of smoky London. The present is therefore considered to be a fitting opportunity for *Chrysanthemum* growers to show their appreciation of Mr. Dale's labours. Communications on the subject, or donations, may be forwarded to Mr. Shirley Hibberd, Hermitage Road, Stoke Newington, Treasurer; or to Mr. J. S. Hodson, Gray's Inn Chambers, 20, High Holborn, Secretary.

NATIONAL HORTICULTURAL EXHIBITION AT MANCHESTER.—The Grand National Horticultural Exhibition at the Botanical Gardens, Old Trafford, which commenced yesterday the 18th inst., and will be continued as usual during the whole of Whit-week, will, we are glad to find, be of a nature deserving of the popularity which has been accorded to this interesting show in previous years. Extensive as the gathering has been in recent years, it has been found necessary this season to increase the space devoted to exhibits, the schedule being on a larger scale and the entries more numerous. Provision has been made for tender exotics in the spacious glass exhibition house, whilst the large annexe will be filled with Rose trees in full flower, *Rhododendrons*, *Azaleas*, *Pelargoniums*, Tree Ferns, Palms, *Lomatias*, *Cycads*, *Alpines*, and new hardy trees and shrubs. In an additional tent erected on the north side of the exhibition house, will be placed collections of plants of many kinds "arranged for effect." Grouping being here the test of merit, this department will probably excite a good deal of interest, more especially as it is a new feature in the exhibition.

COVERING EARLY VINE BORDERS.

ALLOW me to say, in reply to Mr. Baines (see p. 378), that Vines like other plants, require a root temperature about equal to the mean temperature of the atmosphere in which the leaves and branches are developed. This I base upon my own experience, the experience of others, and the almost universal law of Nature in that respect, a law to which Mr. Baines himself adheres in his plant culture, for I do not suppose he keeps the roots of his plants in one house and the tops in another. If this treatment be correct, then I say it cannot be afforded to early Vines with their roots outside, if the border be covered with non-conducting materials only. The temperature of the border will be very far indeed below the mean temperature of the house, when heat is most needed at the roots. On this point I have no two opinions, if one can trust one's eyes and a good thermometer; and it lies with Mr. Baines to show either that such a temperature is not proper for Vines, or that a layer of non-conducting materials is sufficient to secure it. To one or other of these positions he is committed by the advice which he gives at page 312, and which, I think, is misleading. I still adhere to my statement that the temperature of outside borders is about 55° or 60° early in the autumn, and it will continue steadily to decline from that period under a covering of non-conducting materials only, and by non-conducting materials I mean such as are available in gardens, that is, dry leaves or straw, covered with wooden shutters or thatch to throw off the wet. Put on sufficient materials to ferment, however, and you wrap the warm ground in a warm blanket and keep it warm, which is what all cultivators use fermenting materials for—they are simply a means to an end. I trust I have made myself clear to your correspondent, and I feel sure that he is far too practical a man to fight shy of the question at issue. I am perfectly well aware that Grapes can be grown, even though the above conditions be not conformed to strictly, but the best plan is the best for everybody, and the nearer they are fulfilled the better. Mr. Baines makes remarks concerning the "volumes that have been written" on the subject of bottom-heat, and about much that has been advanced "time out of mind" being accepted "without question as conclusive," &c. The only reply that I would make to this is, that it is much to be regretted Mr. Baines did not give the public the benefit of his long experience in Vine culture, and also an account of the "series of experiments" which he made eighteen years ago with the avowed object of testing this vexed bottom-heat question, when there was so much discussion about it, and when his opinions would have been of practical value. It does seem strange that one having such matured opinions on the subject should have allowed the most fitting opportunity of expressing them to pass by, for I do not remember that at the time referred to Mr. Baines had a word to say on the subject.

J. SIMPSON.

Wortley.

When to Water Vines.—"A Northern Gardener" (see p. 362), in contradistinction to those who advocate giving manure-water to Vines only when the fruit is swelling, says that he gives it from the time when the shoots are from 1 in. to 2 in. long up to the colouring point as regards the fruit. I go further than that, and advocate it being given every time water is requisite; and having practised this for years with a fair amount of success, I can recommend it for adoption by others. Grape Vines are gross feeders, and when in good health it is almost an impossibility to give them too much nourishment. I would recommend their diet to be varied occasionally, as, for instance, from guano-water to soot-water, or ordinary liquid-manure from the stable or cow-yard.—A SOUTHERN GARDENER.

Fruit Blossoms and Spring Frosts.—Most disastrous results may be expected from the severe frosts which occurred on the first days of this month, and which culminated on the morning of the 5th by the sharpest frost known in May for some years past, viz., from 9° to 15°. One need not ask how fruit-blossoms have fared—our worst fears are realized. In the midst of the havoc it is, however, refreshing to direct attention to any trees that have escaped, though ever so narrowly. Such we have in a row of low cordon Pears which are trained obliquely to iron hurdles, and which were covered when frost seemed imminent with Frigi Domo; in the case of these every blossom has escaped injury. Now, considering the uncertainty of our climate, and the ready mode of protecting such trees as are here named, is it not worth the consideration of planters as to whether cordon or espalier training should not be more largely adopted? Mr. Rivers' suggestion as to growing bush or pyramidal trees in pots, laying them on their sides, and protecting them with mats in frosty weather, is also worthy of consideration, and though, personally, I have a horror of all kinds of pot fruit culture, I am willing to admit that a dozen Pears, even, from a pot plant, are better than none at all, which, from very many trees, will be the case this season.—W.

EXHIBITION OF CLEMATISES.

MESSRS. JACKMAN & SONS have this year, as heretofore, afforded a treat to all lovers of Clematises who have an opportunity of visiting the Royal Botanic Gardens, Regent's Park. These plants, numbering nearly 250, are arranged in the form of a sloping bank extending the whole length of the corridor which adjoins the conservatory. Clematises are beautiful under all circumstances, but when seen as we find them here, their true value as decorative plants can be fully appreciated. They are trained over balloon-shaped or pyramidal wire trellises, which are covered with flowers of all shades of colour, so arranged as to harmonize well with each other. This exhibition is edged with silvery-leaved Euonymuses and Lithospermum prostratum, and standard scarlet-flowered Rhododendrons in full bloom are inserted at certain distances apart amongst the Clematises with good effect. Of Clematises we noted fine plants of Lord Derby, a variety with fall and well-formed flowers of a pale lavender or bluish-mauve colour; Sir Garnet Wolseley, bluish with dark purple anthers; Countess of Lovelace, a vigorous-habited kind, bearing a profusion of flowers of a bluish-lilac colour; Lucie Lemoine, also a charming kind, with pure white, rosette-shaped blossoms. A variety named The Gem, with brilliant mauve-coloured flowers, was especially striking; and Duke of Richmond, a whitish-pink-flowered kind, with rosy-purple veins, was in equally good condition. S.

Raising Seedling Chrysanthemums.—I have now coming into bloom a plant of Chrysanthemum Orange Annie Salter. It was started with a number of others at the proper time in order to bloom for seedling purposes, and judging by the appearance of the bud (just colouring) I shall have a very fine bloom, although only in a 5-in. pot. In 1875 I started a quantity of Chrysanthemums with the view of getting some seed, and amongst others Mrs. Moggeridge produced me a splendid pod, the contents of which being later than I had hoped for were not sown till this year. I have now some fine seedlings, well-established in 5-in. pots, which will in due course be shifted into blooming-pots the same as the named varieties. Those which I flowered last year were very promising. Seeds cannot be had from November blooms; therefore I have had recourse to the plan of obtaining flowers in spring, and then seed. I may add that I keep them thoroughly cool during the blooming period.—F. T. Davis, Plumstead Common.

Fertilising Aucubas.—Some have been tolerably successful in getting plants of the Aucuba well furnished with berries by planting a male Aucuba beside one of the opposite sex, or by grafting the two together; and I have also seen berries upon bushes without any male plant being near them; but fertilising a few female bushes each day while they are in flower would be time well spent. Indeed, a good Aucuba well covered with berries is as ornamental a plant as could be desired, and fertilising is an operation easily done when once it is tried. We have one small male plant here, and last season, when its flowers were fully open, I gathered some and fertilised the flowers of our female Aucubas with them, and the result is that they are now producing some very pretty red berries; whereas, had I not used the male flower as described, the probability is that we should not have had a single berry.—R. M.

Lilium giganteum.—There may now be seen at Hospitalfield Gardens, Abrecht, a specimen of this Lily with a flower-stalk 7 ft. high, on which are eleven fine blooms. Has this been beaten elsewhere?—G. PATON, 21, Nethergate, Dundee.

Hyd Park.—A useless walk between the drive and the Knightsbridge Road has been very properly done away with. Pending greater reforms one of the most useful works to which students of landscape gardening could devote themselves, would be the abolition of unnecessary walks.

May Frosts in Suffolk.—The late severe frosts have been very destructive in this district. Plums, Pears, and Cherries blossomed abundantly, but hardly any have escaped unhurt; all the early blossom on Apples is destroyed; of Apricots and Peaches on a south wall none are left; Gooseberries and Currants are very much thinned. The early blossoms of Strawberries are black in the heart, but with good weather we may still have a fair crop. Walnut trees look as if they will hardly recover—their young shoots are all destroyed.—F. DODDS, Millthorpe.

Weather in South Lincolnshire.—The following will give some idea of the kind of weather which we have lately had in this district:—

May 1	22 degrees	cold, with hail and wind	Wind N.
" 2	35 "	cloudy	" N.W.
" 3	39 "	cold, with hail	" N.
" 4	24 "	cold, with snow and hail	" N.E.
" 5	27 "	cold, with hail	" N.E.
" 6	24 "	clear, frost	" N.E.
" 7	23 "	"	" N.E.
" 8	23 "	"	" S.E.
" 9	35 "	thunder, and rain	" S.E.
" 10	41 "	thunder-storm, with heavy rain and hail: ½ in. fell in four hours: weather since more settled.	

—D. LUMSDEN, Blenheim Hall.

THE PLANT-LORE OF SHAKESPEARE.

(Continued from p. 372).

Ivy.

- (1) *Titanic*. The female Ivy so
Enrings the barky fingers of the Elm.
Midsummer Night's Dream, act iv., sc. 1.
- (2) *Prospero*. That now he was
The Ivy which had hid my princely trunk
And sucked my verdure out on't.
Tempest, act i., sc. 2.
- (3) *Adriana*. If ought possess me from thee it is dross,
Usurping Ivy, Brier, or idle Moss.
Comedy of Errors, act ii., sc. 2.
- (4) *Shepherd*. They have scared away two of my best sheep; if any-
where I find them 'tis by the seaside browsing on Ivy.
Winter's Tale, act iii., sc. 3.

The rich evergreen of "the Ivy never sear" (Milton) recom-
mended it to the Romans to be joined with the Bay in the
chaplets of poets—

Hanc sine tempora circum
Inter victrices hederam tibi serpere lauros.—*Virgil*.
Sen condis amabile carmen
Prima ferēs hederæ victricis præmia.—*Horace*.

And in mediæval times it was used with Holly for Christmas
decorations. But the old writers always assumed a curious
rivalry between the two—

Holly and Ivy made a great party
Who should have the mastery
In lands where they go.

And there is a well-known carol of the time of Henry VI.,
which tells of the contest between the two, and of the mastery
of the Holly; it is in eight stanzas, of which I extract the last
four—

Holly he hath berries as red as any Rose,
The foresters, the hunters, keep them from the does;
Ivy she hath berries as black as any Sloe,
There come the owls and eat them as they go.
Holly he hath birds, a full fair flock,
The nightingale, the popinjay, the gentle laverock;
Good Ivy, say to us, what birds hast thou?
None but the owlet that cries "How, how!"

Thus the Ivy was not allowed the same honour inside the
houses of our ancestors as the Holly, but it held its place out-
side the houses as a sign of good cheer to be had within. The
custom is now extinct, but, formerly, an Ivy bush (called a
tod of Ivy) was universally hung out in front of taverns in
England, as it still is in Brittany and Normandy. Hence arose
two proverbs—"Good wine needs no bush"—i.e., the reputa-
tion is sufficiently good without further advertisement; and
"An owl in an Ivy bush," as "perhaps denoting originally the
union of wisdom or prudence with conviviality, as 'Be merry
and wise'" (Nares). And the Ivy was a plant as much
admired by our grandfathers of the fifteenth and sixteenth
centuries as it is now by us; Spenser was evidently fond of it—

Amongst the rest the clambering Ivie grew
Knitting his wanton armes with grasping hold,
Least that the Poplar happily should rew
Her brother's strokes, whose boughes she doth enfold
With her lythe twigs till they the top surwey,
And paint with pallid greene her buds of gold

Virgil's Gnat.

And Chaucer describes it as

The erbe Ivie that groweth in our yard that mery is.

And in the same poem he prettily describes it as

The pallid Ivie building his own bowre.

As a wild plant, the Ivy is found in Europe, Asia, and Africa,
but not in America, and wherever it is found it loves to cover
with its close and rich drapery, old walls and buildings, and
trees of every sort, and where it once establishes itself it is
always beautiful, but not always harmless. Both on trees and
buildings it requires very close watching. It will very soon
destroy soft-wooded trees, such as the Poplar and the Ash, by
its tight embrace, not by sucking out the sap, but by prevent-
ing the outward growth of the shoots, and checking—and at
length preventing—the flow of sap; and in buildings it is no
doubt beneficial as long as it is closely watched and kept in

place, but if allowed to drive its roots into joints, or to grow
under roofs, the swelling roots and branches will soon displace
any masonry, and cause immense mischief.

We have only one species of Ivy, and there are only two
real species recognised by present botanists, but there are
infinite varieties, and many of them very beautiful. These
variegated Ivies were known to the Greeks and Romans, and
were highly prized by them, one especially with white fruit
(at present not known) was the type of beauty. No higher
praise could be given to a beauty than that she was "hedera
formosior alba." These varieties are scarcely mentioned by
Gerarde and Parkinson, and probably were not much valued;
they are now in greater repute, and nothing will surpass them
for rapidly and effectually covering any bare spaces.

I need scarcely add that the Ivy is so completely hardy that
it will grow in any aspect and in any soil: that its flowers are
the staple food of bees in the late autumn, and that all the
varieties grow easily from cuttings at almost any time of the
year.

Kecksies.

Burgundy. And nothing teems
But hateful Docks, rough Thistles, Kecksies, Burs,
Losing both beauty and utility.
Henry V., act v., sc. 2.

Kecksies or Kecks are the dried and withered stems of the
Hemlock, and the name is occasionally applied to the living
plant.

Knotgrass.

Lysander. Get you gone, you dwarf.
You minimus, of hindering Knot-grass made,
You bead, you Acorn.
Midsummer Night's Dream, act iii., sc. 2.

The Knot-grass is the *Polygonum aviculare*, a British weed,
low, straggling, and many-jointed, hence its name of Knot-
grass. There is no doubt that this is the plant meant, and its
connection with a dwarf is explained by the belief, probably
derived from some unrecorded character detected by the
"doctrine of signatures," that the growth of children could be
stopped by a diet of Knot-grass. Steevens quotes Beaumont
and Fletcher to this effect, and this will probably explain the
epithet "hindering." But there may be another explanation.
Johnstone tells us that in the north, "being difficult to cut in
the harvest time, or to pull in the process of weeding, it has
obtained the sobriquet of the Devil's-lingels." From this it
may well be called "hindering," just as the *Ononis*, from the
same habit of catching the plough and harrow, has obtained
the prettier name of "Rest-harrow."

But though Shakespeare's Knot-grass is undoubtedly the
Polygonum, yet the name was given to another plant, for this
cannot be the plant mentioned by Milton—

The chewing flocks
Had ta'en their supper on the savoury herb
Of Knot-grass dew-besprent.—"Comus."

In this case it must be one of the pasture Grasses, and may
be *Agrostis stolonifera*, as it is said to be in Aubrey's "Natura
History of Wilts" (Dr. Prior).

Lady-smocks.

Song of Spring. When Lady-smocks, all silver-white,
Do paint the meadows with delight.
Love's Labour's Lost, act v., sc. 2.

Lady-smocks are the flowers of *Cardamine pratensis*, the
pretty early meadow flower of which children are so fond, and
of which the popularity is shown by its many names, Lady-
smocks, Cuckoo-flower, Meadow Cress, Pinks, Spinks, Bog-
spinks, and May-flower, and "in Northfolke, Canterbury
Bells." The origin of the name is not very clear. It is gene-
rally explained from the resemblance of the flowers to smocks
hung out to dry, but the resemblance seems to me rather
far-fetched. According to another explanation, "the Lady-
smock, a corruption of Our Lady's-smock, is so called from
its first flowering about Lady-tide. It is a pretty purplish-
white, tetradynamous plant, which blows from Lady-tide till
the end of May, and which during the latter end of April
covers the moist meadows with its silvery-white, which looks
at a distance like a white sheet spread over the fields" ("Circle
of the Seasons.") Those who adopt this view called the plant

Our Lady's-smock, but I cannot find that name in any old writers. Drayton, coeval with Shakespeare, says:—

Some to grace the show,
Of Lady-smocks most white do rob each neighbouring mead,
Wherewith their loose locks most curiously they braid.

And Isaac Walton, in the next century, drew that pleasant picture of himself sitting quietly by the waterside—"looking down the meadows I could see here a boy gathering Lilies and Lady-smocks, and there a girl cropping Culverkeys and Cowslips."

There is a double variety of the Lady-smock which makes a handsome garden plant, and there is a remarkable botanical curiosity connected with the plant which should be noticed. The plant often produces in the autumn small plants upon the leaves, and by the means of these little parasites the plant is increased, and even if the leaves are detached from the plant and laid upon moist, congenial soil, young plants will be produced. This is a process that is well known to gardeners in the propagation of Begonias, and it is familiar to us in the proliferous Ferns, where young plants are produced on the surface or tips of the fronds; and Dr. Masters records "the same condition as a teratological occurrence in the leaves of *Hyacinthus Ponzolsii*, *Drosera intermedia*, *Arabis pumila*, *Chelidonium majus*, *Chirita sinensis*, *Epicia bicolor*, *Zamia*, &c."—"Vegetable Teratology," p. 179).

Lavender.

Perdita. Here's flowers for you,
Hot Lavender, sweet Mints, Savory, Marjoram.
Winter's Tale, act iv., sc. 3.

The mention of Lavender always recalls Walton's pleasant picture of "an honest ale-house, where we shall find a cleanly room, Lavender in the windows, and twenty ballads stuck against the wall, and my hostess, I may tell you, is both cleanly and handsome and civil." Whether it is from this familiar old-fashioned picture, or from some inherent charm in the plant, it is hard to say, but it is certain that the smell of Lavender is always associated with cleanliness and freshness. It is not a British plant, but is a native of the south of Europe in dry and barren places, and it was introduced into England in the sixteenth century, but it probably was not a common plant in Shakespeare's time, for though it is mentioned by Gerarde as growing in his garden, it is not mentioned by Bacon in his list of sweet-smelling plants. The fine aromatic smell is found in all parts of the shrub, but the essential oil is only produced from the flowers. As a garden plant it is found in every garden, but its growth as an extensive field crop is chiefly confined to the neighbourhood of Mitcham and Carshalton in Surrey, and there at the time of the picking the flowers, and still more in the later autumn when the old woody plants are burned, the air for a long distance is strongly and most pleasantly impregnated with the delicate perfume.

Laurel.

- (1) *Clarence.* To whom the heavens in thy maturity
Adjudged an Olive branch and Laurel crown
As likely to be blest in peace and war.
3rd Henry VI., act iv., sc. 6.
- (2) *Titus.* Cometh Andronicus bound with Laurel boughs.
Titus Andronicus, act i., sc. 2.
- (3) *Cleopatra.* Upon your sword
Sit Laurelled victory.
Antony and Cleopatra, act i., sc. 3.
- (4) *Ulysses.* Prerogative of age, crowns, sceptres, Laurels.
Troilus and Cressida, act i., sc. 3.

This is one of the plants which Shakespeare borrowed from the classical writers; it is not the Laurel of our day, which was not introduced till after his death, but the *Laurea Apollinis*, the *Laurea delphica*,

The Laurel meed of mightie conquerors
And poets sage.—*Spenser*.

that is the Bay. There can be little doubt that the Laurel of Chaucer was the Bay, the

Fresh grene Laurer tree
That gave so passing a delicious smelle
According to the *Eglantere ful wellle*.

though the Laurel in Lyte's Herbal (the *Laurel* or *Lourye*) seems to be the *Daphne Laureola*. But unconsciously Chaucer and Shakespeare spoke with more botanical accuracy than we do, the Bay being a true Laurel, while the Laurel is a Cherry (see Bay).

Leathercoat (see Apple).

Leek.

- (1) *Thisbe.* His eyes were green as Leeks.
Midsommer Night's Dream, act v., sc. 1.
- (2) *Pistol.* Tell him I'll knock his Leek about his pate upon Saint Davy's Day.
Henry V., act iv., sc. 1.
- (3) *Fluellen.* If your majesties is remembered of it, the Welshman did goot service in a garden where Leeks did grow, wearing Leeks in their Monmouth caps, which your majesty knows to this hour is an honourable padge of the service; and I do believe takes no scorn to wear the Leek upon Saint Tavy's Day.
Ibid., act iv., sc. 7.
- (4) In act v., sc. 1, is the encounter between *Fluellen* and *Pistol*, when he makes the bully eat the Leek; this causes such frequent mention of the Leek that it would be necessary to extract the whole scene, which, therefore, I will simply refer to in this way.

We can scarcely understand the very high value that was placed on Leeks in olden times. By the Egyptians the plant was almost considered sacred, "Porum et capre nefas violare et frangere morsu"—(Juvenal); we know how Leeks were relished in Egypt by the Israelites; and among the Greeks they "appear to have constituted so important a part in ancient gardens, that the term *πρασά*, or a bed, derived its name from *πρασον*, the Greek word for Onion," or Leek—(Danbenny); while among the Anglo-Saxons it was very much the same. The name is pure Anglo-Saxon, and originally meant any vegetable; then it was restricted to any bulbous vegetable, before it was finally further restricted to our Leek; and "its importance was considered so much above that of any other vegetable, that *leac-tun*, the Leek-garden, became the common name of the kitchen garden, and *leac-ward*, the Leek-keeper, was used to designate the gardener."—(Wright). The plant in those days gave its name to the Broad Leek which is our present Leek, the Yne Leek, or Onion, the Garleek (Garlic), and others of the same tribe, while it was applied to other plants of very different families, as the Hollow Leek (*Corydalis cava*), and the House Leek (*Sempervivum tectorum*). Its popularity still continues among the Welsh, by whom it is still, I believe very largely cultivated; but it does not seem to have been much valued in England in Shakespeare's time, for Gerarde has but little to say of its virtues, but much of its "hurts." "It heateth the body, ingendreth naughty blood, causeth troublesome and terrible dreames, offendeth the eyes, dulleth the sight, &c." Nor does Parkinson give a much more favourable account. "Our dainty eye now refuseth them wholly, in all sorts except the poorest; they are used with us sometimes in Lent to make pottage, and is a great and generall feeding in Wales with the vulgar gentlemen."

Lemon.

Biron. A Lemon.
Longville. Stuck with Cloves.
Love's Labour's Lost, act v., sc. 2. (See Orange).

Lettuce.

Iago. If we will plant Nettles or sow Lettuce.
Othello, act i., sc. 3. (See Hyssop).

This excellent vegetable with its Latin name, probably came to us from the Romans. It was cultivated by the Anglo-Saxons, and in Shakespeare's time the sorts cultivated were very similar to, and probably as good as, ours.

H. N. ELLACOMBE.

(To be continued).

Insect Friends.—I find the insect herewith sent to be very troublesome. What is its name?—J. J. [The name is *Omasus melanarius*, but it is a friend, not an enemy. It is carnivorous, and feeds on other insects.—A. M.]

Variiegated New Zealand Flax in Flower.—We have a fine specimen of the *Phormium tenax variegatum* now in flower; the flower-stalk measures about 9 ft. Is it not an uncommon thing for this Flax to flower in this country?—J. C. BARBOE & SON, *Borrowash, Derby*.

IVY SCREENS.

WE have spoken at various times in THE GARDEN of the charming and varied uses to which the common Irish Ivy is put in gardens in the neighbourhood of Paris. This spring we had a photograph taken of an Ivy-covered railing on the Boulevard de la Seine, near Conrbevoie, from which the accompanying illustration has been drawn and engraved. It is simply one of many which may be seen in and around Paris; there, where the winter is very severe, as many know to their cost, and where as many evergreens do not grow as with us, it is refreshing to see the many Ivy-clad surfaces in winter and spring, when most of the trees and shrubs are bare. On the railings the Ivy, while furnishing a pleasing effect to the eye (far more so than bare railings), is also often useful as a screen. Young and vigorous plants, uniform in size, set in rich, light earth, soon cover these railings, as shown in our illustration. The Ivy is so trained that the beautiful shield-like leaves form a uniform imbricated wall of verdure.

PLANTING VASES AND FLOWER BOXES.

IN many villa gardens, vases, where tastefully planted, form quite an attractive feature. The most suitable positions for them are the sides of flights of steps, at each side of a doorway, on terrace walks, or along a balustrade; they should not be placed too near windows, nor should they be anywhere crowded. Various materials are employed in the manufacture of vases, such as stone, iron, and plaster, but the best are made of terra-cotta. Vases are of various sizes and shapes, some being broad and shallow, others deep and narrow. The shape of the vase will invariably determine the style of planting. A flat vase should be planted with rather dwarf plants, with trailers hanging over the rim. Deep and narrow vases, on the contrary, should be furnished with tall plants. It would be

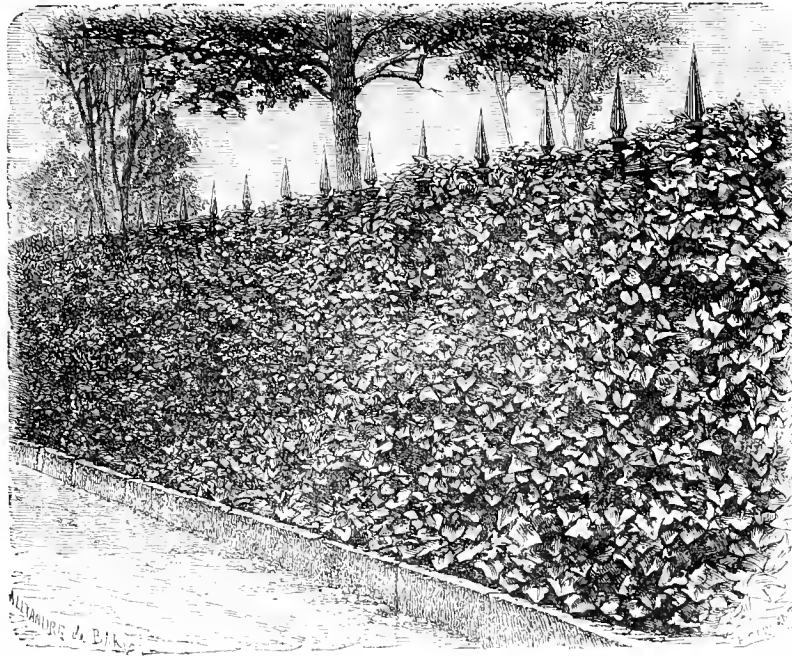
out of character to plant a Tulip-shaped or Oriental vase with very dwarf plants; they require to be furnished with something tall and having drooping branches, as, for instance, a Fuchsia, or *Humea elegans*. As a rule, vases do not receive that attention which they deserve. They are frequently left until the last, and filled with odds and ends after the beds in the flower garden have been planted. Vases, before being planted, should be well drained, and the best soil for them is fresh turfy loam and rotten manure, to which should be added a little leaf-mould. For furnishing large vases, where tall plants are required, I take up a quantity of Pelargoniums in autumn, and keep them in small pots or boxes through the winter, for I find that those struck from cuttings in autumn are not so good for the purpose. For deep vases, rising about 3 ft. from the ground, and standing at the end of a terrace walk, nothing is more suitable than the *Humea elegans*, surrounded by trailing plants hanging over the sides. Most of the plants used for flower-garden decoration will be found suitable for vases. Pelargoniums will invariably form the staple, but to these may be added *Calceolarias*, *Lobelias*, Dwarf Fuchsias, *Centaurea gymnocarpa*, *Mesembryanthe-*

mums, Ivy-leaved Pelargoniums, various *Tropæolums*, *Humea elegans*, and *Heliotropes*; other plants might be used, but these, well arranged, will produce a good effect. In planting a broad flat vase begin at the rim with plants that will hang over the edge, such as *Lobelias*, Ivy-leaved Pelargoniums, and *Tropæolums*; let the next circle consist of somewhat taller plants, such as variegated Pelargoniums, and finish off with the tallest in the centre. When *Tropæolums* or Ivy-leaved Pelargoniums are used for draping the sides, it is a good plan to run one or two pieces of copper-wire round the outside of the vase, to which to tie the plants, in order that they may not be chafed by the wind. The *Petunia* is a useful plant for vases, inasmuch as it flowers more profusely when pinched for root-room than when unrestricted in that respect; but it requires plenty of water—watering, indeed, will demand careful attention throughout the summer, and when the plants have made good root-growth, liquid manure may be given twice a week. When the beauty of the summer-flowering plants is over, hardy plants and bulbs that will bloom and look gay in spring should occupy their places. Among the former may be mentioned Wallflowers, *Saxifraga cordifolia*, and *S. crassifolia*, and others, which, if margined with *Aubrietia deltoidea*,

will produce a charming effect that will be greatly enhanced by the addition of a few Tulips and Hyacinths. Besides hardy perennials, we have quite a wealth of dwarf shrubs at our command, such as *Rhododendrons*, Heaths, *Aucubas*, and Box, with Ivies for trailing round the sides. As regards boxes, in western London it has become fashionable for every window to be a miniature flower garden, on which considerable sums are annually spent, and notwithstanding the smoke and dust in summer, they look remarkably gay. For window boxes like vases we have a large variety of suitable plants, among which may be named Stocks, Asters, Pelargoniums, both plain-leaved and variegated, Fuchsias, *Mignonette*,

and Musk, and to these may be added *Lobelia*, Ivy-leaved Pelargoniums, and *Mesembryanthemum cordifolium variegatum*, to hang over the sides. A few *Tropæolums* of the *Lobbianum* section, Canary Creepers, and *Convolvulus major*, might likewise be trained up the sides and over the top of the window, so as to form an arch.

K. R.



Railing Screen of Irish Ivy.

Wistarias as Wall-top Climbers.—Few prettier objects can be found than a Wall well furnished with fruit trees, and overhung with the lovely pendulous blooms of the *Wistaria*. We have a plant of it here that in a few years has run along the coping 50 yards each way, and it still continues to extend its growth many feet annually. As a rule I dislike combining fruit and flower culture, but this light feathery-leaved climber repays so well the slight amount of attention which it requires, and is moreover rather beneficial than otherwise in the way of protecting the fruit crops, that an exception is made in its favour. It is of course spurred in so that the side branches just hang over the edge of the wall coping, the leading shoots being left to extend themselves at will. It apparently enjoys an immunity from insect plagues, a great advantage when grown in connection with fruit trees.—JAMES GROOM, *Henham*.

OPEN-AIR VEGETATION IN APRIL.*

THE weather during April upon the whole has been cold, and much against open-air vegetation, perhaps more so than has been observed on the 30th of April for many years, the wind nearly the whole month having an easterly tendency, except on the 20th, when it got round to the south-west, which brought forward the flowers of the Norway Maple and certain Elms, also the young leaves of some of the Hawthorns, besides greatly increasing the size of the leaf-buds of certain Planes and Horse Chestnuts, but without expanding them. After that day the wind veered round to the east again, and vegetation has progressed very slowly, so much so that forest vegetation, with the exception of the few examples quoted, has quite a wintery appearance. Herbaceous vegetation is also very far behind, the diminutive condition of many plants being very marked. Some of the ordinary early-blooming plants have been also late in flowering. The Crown Imperial (*Fritillaria imperialis*), which is often past by this time, is scarcely yet in perfection. Many Scillas and other spring bulbs, which usually flower in March, are now in good bloom, and even the common Crocus can still be found in flower; Snowdrops were also procurable about eight days ago. Standard plants of the *Ribes sanguineum* have not been particularly good this season, their flowers being still much behind. Many other examples might be quoted, the foregoing, however, is sufficient to show the backwardness of vegetation. In my report for March, I stated that certain species of *Cypripedium* had suffered severely; the browning complained of is still going on, and many of the plants then noticed are permanently disfigured. During the month of April the thermometer has been ten times at or below the freezing point, indicating collectively 50°, the six lowest temperatures were on the 2nd, 11th, 12th, 14th, 20th, and 25th, when 26°, 26°, 23°, 24th, 23°, and 27° were respectively registered, while the six highest night temperatures were on the 8th, 9th, 15th, 16th, 21st, and 22nd, indicating respectively 39°, 40°, 40°, 30°, 42°, and 38°. The prevalence of low night temperatures of late has been remarkable, nor can it be otherwise while so much snow lies in various parts of the country. Throughout April the six highest night temperatures, as already noted, only amounted to 23°, being lower than had been noticed during the corresponding month last year, when the six highest indicated collectively 290°, all counted above zero, or 47° above the freezing point for April, 1877, and 101° for April, 1876. On April 30, ninety-seven species and varieties of plants were counted in flower on the rock garden, while the corresponding day last year 122 were noticed, the most conspicuous at the present time being—

<i>Adonis vernalis</i>	<i>Primula ciliata purpurata</i>
<i>Anemone nemorosa bracteata alba</i>	<i>Primula denticulata</i>
<i>Anemone Robinsoniana</i>	<i>Primula helvetica</i>
<i>Aubrietia grandiflora</i>	<i>Primula integrifolia</i>
<i>Colechicum sibiricum</i>	<i>Primula nivalis</i>
<i>Dondia Epipactis</i>	<i>Primula purpurea</i>
<i>Draba aizoides</i>	<i>Primula vulgaris</i>
<i>Erica hybernica alba</i>	<i>Pulsatilla bracteata</i>
<i>Erica hybernica intermedia</i>	<i>Puschkima scilloides</i>
<i>Erica hybernica nana</i>	<i>Saxifraga cordifolia</i>
<i>Erythronium grandiflorum</i>	<i>Saxifraga retusa bryoides</i>
<i>Erythronium giganteum</i>	<i>Scilla sibirica</i>
<i>Erythronium giganteum roseum</i>	<i>Scilla praecox</i>
<i>Fritillaria aurea</i>	<i>Soldanella montana</i>
<i>Orobanchia elegans</i>	<i>Trillium grandiflorum</i>
<i>Polygala Chamæbuxus</i>	<i>Tulipa pulchella</i>

The following spring plants complete the list annually recorded to show their period of flowering:—

	1877.	1876.
<i>Symphytum caucasicum</i>	April 5	March 15
<i>Narcissus Pseudo-Narcissus</i>	" 8	April 3
<i>Adonis vernalis</i>	" 12	" 5
<i>Fritillaria imperialis</i>	" 14	" 6
<i>Hyoseycaus physaloides</i>	" 16	" 2

In my monthly returns on open-air vegetation it is not usual to give any remarks on the vegetation of the current month, but as this May, so far as it has gone, has been rather an exceptional one, I cannot refrain making a few observations in order to show the amount of cold we have had up to this time. Frost has been seen more or less every morning, with two exceptions, varying from 1° to 8°, making collectively (up to this date, May 10) 30°, the exceptions being on the 9th, when the thermometer stood at 33°, and on the 10th at 37°. The frosts experienced during May for the last twenty-three years are given in a Table on page 523 of Vol. xii. of the "Botanical Society's Transactions" for 1876-77. In May, 1855, 29° were registered; in 1861, 21°; in 1869, 13°; in 1874, 16°; and in 1876, 26°. From this Table it will be seen that during four years no May frosts were noticed, during five years 1° only each year was

* Read by Mr. J. MacNab before the Botanical Society of Edinburgh, May 10, 1877.

recorded, and for twelve years from 2° to 6° were registered. It is difficult at the present time to say with exact certainty the period vegetation is behind former years, probably not less than three weeks. For twenty-eight consecutive seasons we have had the young branches of the Beech each 5 in. long to hand to the students attending the botanical class either on the 8th, 9th, or 10th of May, to show an example of an alternate leaf. This year no shoot is yet out of its winter scales. Many other examples of open-air trees (to show venation and prefoliation) daily occur; all are, however, behind, while other plants are now in good condition, such as the *Fritillaria imperialis*, which is generally past at this period of the year. In consequence of the length of time leaf-buds have been pent up caused by the long, ungenial spring, it is but reasonable to expect that as soon as a favourable change takes place, and with the present moisture in the ground, we shall observe a rapidity in the development of foliage such as is seldom seen.

Malope grandiflora.—This, one of the most showy of hardy annuals, well deserves a place in every garden where a bold, showy crimson flower is desired. It to from a height of from 18 in. to 20 in., and the better the plants are treated in regard to soil the finer will they bloom. If I wanted some extra good examples of it I should sow half-a-dozen seeds in a 3-in. pot in some thoroughly good soil, raise them in a greenhouse, and, when large enough and sufficiently hardened off, place the contents of the pot in the border without breaking the ball of soil. Treated generously in this way the plants become strong, and the flowers large and brilliant in colour. As a rule annuals are regarded as scarcely deserving much trouble; they are sown in haphazard ways, and are often left to take care of themselves in uncongenial soils. If the *Malope* be sown in the open ground, it is only fair that it be prepared by digging and manuring it, and then the seeds should be sown in some light, rich soil $\frac{1}{2}$ in. below the surface, and gently pressed down. The soil that is added soon starts the young plants into good growth, when they strike their roots down into the material prepared for their reception. Too often annuals only root superficially, and then when hot, dry weather sets in they soon go out of bloom. There is a white variety named *M. g. alba*, which is the counterpart of *M. grandiflora*, with the exception of the colour. The new variety called *M. g. rosea*, white flushed with rose, is also very pretty, and quite distinct; at Chiswick last summer this new variety was remarkably effective. When I was in the neighbourhood of Dublin in 1869, I saw in a private garden a striped sport from *Malope grandiflora*, the ground colour of which was white streaked with rosy crimson. It was very beautiful, but it went the way of many other sports; it reverted to the parental form, from which it never again varied. I am informed that it sometimes takes from eight to ten years to get a sport to become fixed; it has to be rigidly selected year by year before its character is established.—D.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Greig's Tulip.—I was pleased to see a figure of this in THE GARDEN, though it is difficult to give an idea of its bold beauty and splendid colour. I have long grown Tulips, and never expected to see among new species anything that for brilliancy equalled the old and popular varieties, but this surpasses them, and is, I think, the finest of all early Tulips when well established in good soil.—H. J.

Squills in Bloom at Fulham.—In our collection of Squills the following are coming beautifully into flower, viz.:—*Scilla campanulata*, *S. c. alba*, *S. c. carnea*, *S. patula*, *S. nutans alba*, and *S. n. carnea*. *Muscari comosum*, *M. monstrosum*, and *M. racemosum* are also coming finely into bloom.—R. O.

Osborn's Golden Feverfew (*Pyrethrum aureum laciniatum*).—This is an elegantly-cut-leaved form of the well-known Golden Feather *Pyrethrum*, and is so compact and distinct in habit, forming masses of soft, golden leafage, that it well merits culture for edgings, or as a carpeting plant. Like its ally, it comes true from seed.—B.

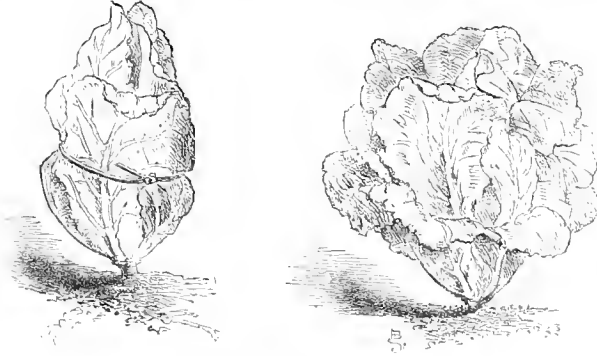
—This is acknowledged by every one to be a decided improvement on the common Golden Feather, the leaves being beautifully fringed or serrated, and it is even dwarfer and more spreading in habit than the old variety. It is very hardy, and is one of those plants that, let the season be what it may, is always in good condition. It should be raised from seed sown in March in boxes of light soil in gentle heat, and pricked out into frames, so as to form good plants by the middle of May.—J. Groom, *Hendon*.

Aubrietia grandiflora on Rockwork.—While passing along Kilgraston Road on the south side of Edinburgh a few days ago, I was quite charmed to see the garden ground in front of Mr. Moxon's residence arranged as an irregular rockery, and completely covered with the rich mauve-coloured flowers of this *Aubrietia*. These flowery banks vary from 10 ft. to 12 ft. long, and about 5 ft. or 6 ft. broad, and the irregularities are of various heights from 2 ft. to 4 ft., all covered, as it were, with light-blue cloth. The garden has a westerly aspect, and, notwithstanding the present ungenial weather, such a show of bloom produced at this season is well worthy of imitation.—JAMES MACNAB, *Royal Botanic Garden, Edinburgh*.

THE KITCHEN GARDEN.

TYING EARLY CABBAGES.

DURING the past few weeks we have noted growers for market very busily engaged in tying up their early Cabbages in the market gardens at Fulham and elsewhere. The operation is simple, just, in fact, that adopted in the case of Cos Lettuces. The succulent outer leaves are folded carefully around the heart or centre of the plant, and the whole is bound firmly with a withe or piece of bast, as shown in the annexed sketch. There are several good reasons for this practice. The centre being protected from the weather, the Cabbages heart sooner

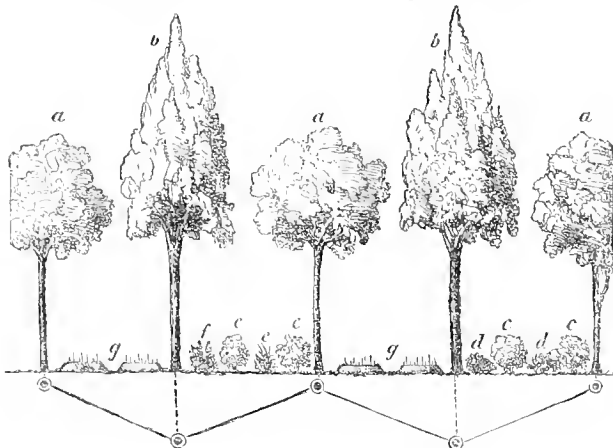


Early Cabbages tied and untied.

by two or three weeks than they otherwise would do, and they are more easily handled in gathering and packing for market. This plan is seldom adopted in private gardens, but there can be no doubt that it is one that can be recommended, inasmuch as there is a gain of a week or two as regards cutting, and compact little Cabbages are always preferable to loose ones, which moreover are apt to get broken and otherwise injured in gathering. B.

A MIXED FRUIT AND VEGETABLE GARDEN.

IN the neighbourhood of Fulham where land is chiefly devoted to market garden crops the most has to be made of it, owing to the high rental which it realises. For a plot of several acres



Plan of Undercropping Orchards.—*a*, Victoria Plum Trees. *b*, Marie Louise Pear Trees. *c*, Gorseberries and Black Currants. *d*, Rhubarb. *e*, Daffodils and Poet's Narcissus. *f*, Wallflower. *g*, Asparagus and Seakale Beds.

just behind the Peterborough Arms, Walham Green, £12 per acre is paid, and there are fruit gardens in sheltered localities of which the rental is even greater. The annexed sketch represents the cropping of the £12 per acre plot, which consists of fruit trees undercropped with vegetables and flowers, a plan which is said to be highly remunerative. The produce of fruit alone one year with another realises £25 per acre. As shown in the woodcut the Plum and Pear trees are planted alternately in the rows, a plan by which the taller-growing

Pears throw very little, if any, shade on the Plums. Gooseberries and Currants do well under standard fruit trees, if the latter be not planted too thickly. Not a little of the success which attends the undercropping of vegetables, hush fruits, and flowers, however, is due to the large quantities of rich, well-rotted manure and manure-water that is obtained from a clean and well-managed piggery, the occupants of which consume the superfluous vegetables and fruit. B.

POTATO PLANTING.

It is said (see p. 360) that "the old practice of spreading the manure in the row and planting the sets upon it is still commonly practised. In planting field crops hardly any other plan can be conveniently adopted." With this practice I disagree. I grow Potatoes in a field, of about 3½ acres as follows:—The land intended for them is selected early in winter, and before Christmas it is roughly and deeply tilled. About the end of January manure is spread over it at the rate of about 25 tons to the acre, and then buried. A week or ten days before planting the ground is well worked with the cultivator, which not only loosens it, but thoroughly mixes the manure through it. Before planting the drills are drawn about 30 in. apart, and all is ready for the sets. Under all circumstances, when the ground is not occupied with other crops, it should be turned up before Christmas; and when the soil is of a retentive character, the manure should be added at the same time. If the soil be open and porous, then the manure may be worked in equally all through it six or seven weeks before planting. It is a mistake to place the sets on raw stable manure in the trenches; indeed, it must have been observed that when the Potatoes are dug up the manure is reproduced in a state of dry flakes that would require a large quantity of water to moisten them; it cannot therefore be said to have helped to produce the Potatoes which it was designed to do. I know that many cottagers who have a poor soil often put little manure into the trenches, with the view of making the most of it, but as the plants advance in growth, and the roots keep spreading and striking out in search of fresh food, they escape into a barren soil, and just when the crop requires extra support the roots are unable to furnish it. Ten tons of manure to an acre, well worked through the soil, 18 in. or 20 in. deep, if the subsoil be pretty good, would be likely to produce one-fourth larger crop of good Potatoes than 20 tons put into the trenches immediately under the sets. The start which the plants would receive at first when the sets were placed on the manure would merely produce foliage, to be starved afterwards from want of food. I dig the ground for our garden crops two spits deep, applying the manure about six or eight weeks before the ground is required for planting. In all cases the time of planting must be regulated by locality, position, and season. In warm, sheltered situations, planting may be done early in March, but in low-lying, confined valleys, it is better deferred until towards the end of April. I plant early crops 3 ft. apart, but I intercrop with Brussels Sprouts. Much of the success of the Potato crop depends on the choice of sets. I have a great aversion to cutting Potatoes into many sets, and it is a mistake to select either very large or very small sets. In all cases moderate-sized and the best-shaped Potatoes should be chosen for the purposes of planting. I have tried the experiment of removing every eye except the one nearest the crown of the tuber; this I found prevented the production of useless haulm. These sets, with only one shoot left, produced a fine, healthy crop of even-sized tubers, while those not disbudded and planted with all the sprouts undisturbed, produced the largest quantity of very small Potatoes. Of early Potatoes for garden purposes, we have nothing better than Mona's Pride. The old Ashleaf is, however, still good, and Rivers' Royal Ashleaf is also a general favourite. To succeed the above, Lapstone Kidney stands unrivalled where the land suits it. For field cultivation we find none better in quality than the true York Regent, Paterson's Victoria, and Skerry Blue. The York Regent must not be confounded with the Scotch Regent. For the last ten years Flnkes with me have degenerated, and the crop, notwithstanding that we have sent to Scotland for the seed, has been less and less every year. P. V.

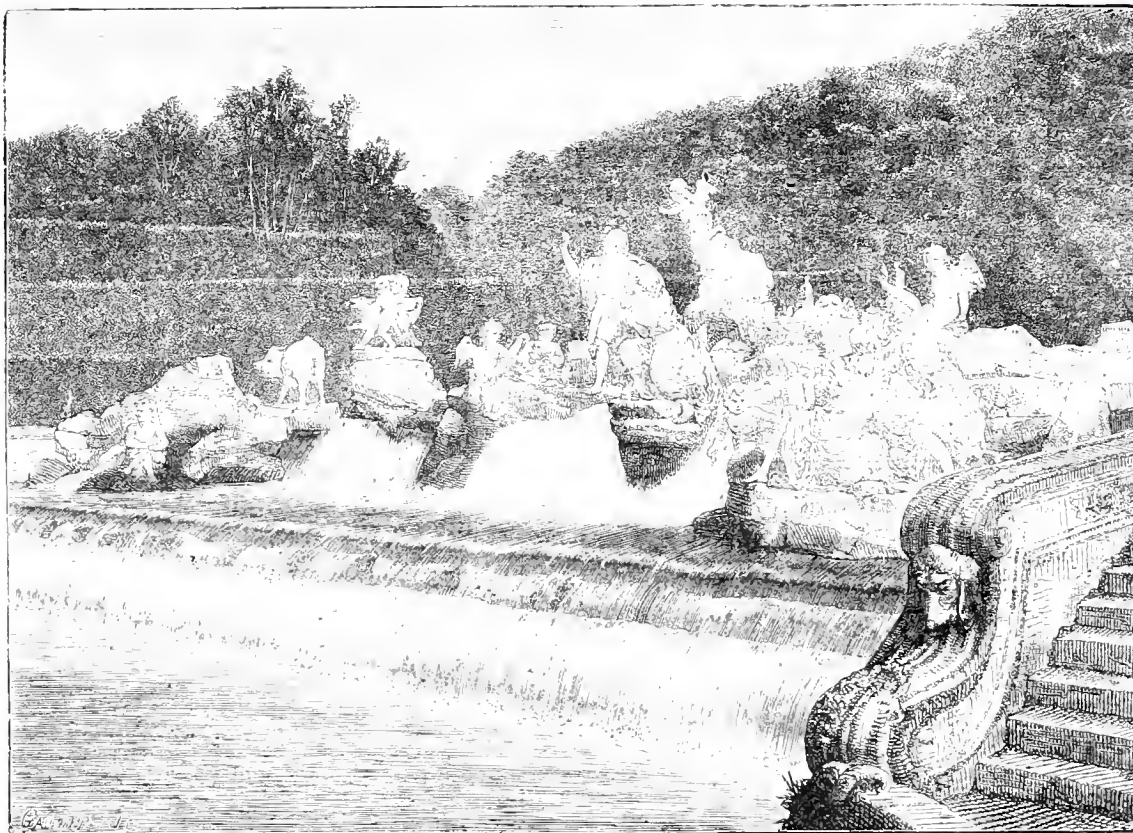
Lettuces Under Glass.—There is such a marked superiority in produce of all kinds grown quickly under glass compared with that out-of-doors, especially if aided by the least bit of bottom-heat, that one wonders how any one with the means to make or buy a few movable frames or lights can wait quietly for their early crops to come in naturally during such a wretched spring as this has been up to the present time. I have been led to make these remarks from looking at a frame full of early Paris market Lettuces that were sown in a box in January in heat close to the glass. About the end

of February an old-fashioned deep frame was filled within 6 in. of the top with hot manure, and made firm by treading, 4 in. or 5 in. in depth of light, rich soil were placed all over the surface, and the Lettuces pricked out 6 in. apart. On cold nights a straw mat was thrown over them, but otherwise the labour and trouble expended in the matter have been almost nothing. It has often been stated that the French cultivator excels his English *confrère* in the production of early Lettuces; and the produce imported into Covent Garden doubtless bears this out, but this superiority is mainly due to the use which the Frenchman makes of his cloches, and there is no question that if the means placed at our disposal were increased, the cost would soon be repaid in the improvement that would take place in the quantity and quality of the produce. I do not care much what shape such protectors assume, whether cloche or frame, the main requirements are shelter and light, and if these be secured the lightest and cheapest covers are the best.—E. HOBDAV.

When to Plant Early Potatoes.—It is sheer waste of time to plant early Potatoes before the 25th of April; even then, when

endorse all that "A. D." says (see p. 386), for having always planted early, I have five seasons out of six had to smart for my folly. Here (North Hants) on the morning of the 5th inst., the thermometer registered 23°, or 9° of frost, which not only destroyed the Potato haulm in its entirety, but Peas that were in flower had their blossoms destroyed; Asparagus was blackened and worthless; Apples, Pears, Plums, and Cherry blossoms were so injured that instead of there being a heavy crop of fruit, as indicated a few weeks ago, it will be the most meagre that we have had for many years past.—W. W. H.

Early Potatoes in Pots.—Being short of frame room in which to force early Potatoes, I have this season grown a quantity in 10-in. pots, and placed them in Vineries and Peach-houses, moving them from place to place as occasion demanded. The pots were half-filled with light loam, with which was incorporated a tenth part of fresh horse manure. Three sets were placed in each pot, and when growth had fairly begun, they were earthed up with similar soil to within 1 in. of the rim of the pot. The first batch was planted the first week in January, and the first Potatoes lifted on April 4, each pot



The old idea: Geometry—stonework—formality.

peeping above ground, they should, in order to make them safe, be earthed over. Previous to planting, my early Potatoes are all laid thinly on shelves in cool sheds, where the sprouts become thick and sturdy, and from 2 in. to 3 in. in length; the land being all dug and manured in autumn and laid up roughly, it is broken up in spring with a three-tined draw hoe-fork. The drills are made 3-in. deep, and the soil is drawn over them so as to form miniature ridges. There is no occasion for early Potatoes being cut down by frost if at once be paid to earthing them up. I may add, however, that I lose half my crop under field culture yearly, by disease but this season I hope to have all lifted by the end of August at the latest—the early ones by the first week in August. Mr. E. Luckhurst, of Oldlands, has, during six years running, saved his crop by doing this, and I see no reason why anybody else cannot do the same.—R. GILBERT, *Burghley*.

— Hereafter I do not intend to plant any Potatoes till well into the month of April, and after the experience of the present season, may, I imagine, will be inclined to follow my example. I can quite

producing from eighteen to twenty-four good tubers, thus giving us a fine dish of Potatoes with but little labour or inconvenience. The kinds grown were Veitch's Ashleaf Kidney, and Fenn's Early Market, a round variety; the haulm of the latter is so short, and the sort is so wonderfully prolific, and of such good quality, that it must eventually become our best early Potato.—W. H.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Paraffin-oiled Seeds v. Vermin.—"A Northern Gardener's" experience of this remedy (see p. 34) is exactly similar to my own. I steeped a quantity of Peas in this oil and sowed a portion of them, leaving the remainder in a shed thinking that they would be safe, but the rats ate them all but the husks; and, as they were under cover, they could not have lost the nauseous effects of the oil, as the tin which contained them was saturated with it. There is one benefit that I believe seeds do derive from such dressing, viz., that when sown, rats or mice do not find them so readily as they otherwise would do, as the powerful smell of the paraffin counteracts that of the seeds.—J. GROOM, *Henham*.

TWO VIEWS IN GARDENS.

HERE we have a beautiful free view in a park, with a breezy open foreground, a bit of well-formed artificial water, and a peep at a distant wood and village, with naturally-developed trees, and perfectly free from any of the puerilities with which large gardens are so often disfigured. On the preceding page is a view in one of these wonderful places, frequently called monuments to the genius of somebody, whose often enormously expensive work only resulted in making the earth much less beautiful than it was before he touched it. It is one of the costly follies at Caserta. It was a favourite doctrine with the creators of these gardens that nothing near the house was to assume a natural form. The noble and long-endured doctrine was that everything near the house was to be trimmed into uniformity to associate with architecture and stone work. Even to the present day this harmful stuff is printed in books on landscape gardening, and unfortunately

THE FRUIT GARDEN.

STRAWBERRY CULTURE IN POTS AND BEDS.

THE time of year having again come round in which to start with the formation of new beds of the above, and the preparation of plants for forcing, a few remarks relating thereto may not be without some use or interest to a portion of the readers of THE GARDEN, although I shall not be able to announce any new discovery or point out a road to success without a considerable amount of attention and time being spent to secure that much-desired result. As regards the pot-culture of this highly esteemed fruit, the first and most important thing is to obtain strong early runners, for without these it is impossible to grow plants with large, fully-developed crowns, without which the crop they yield will be anything but satisfactory. Where Strawberries are forced early, and are therefore



Park Scene, showing Village and Wood in the distance.

often illustrated in earth, and stones, and trees. The formal walls of trees in the distance in the Caserta view show how very far into the grounds this tree shaving was carried. We ought, perhaps to be grateful that the Le Notre of the scene did not square the head of the hills which have so long smiled down on all this costly confectionery. In those days money seems never to have been wanting for the formation of colossal absurdities.

Clay Soil for Pears.—I have found that the stiffest, hardest yellow clay is the best soil in which to plant a Pear tree, and a sandy soil the poorest; and the same recommendation is applicable to the Plum. I can show trees growing in a hard, stiff clay that would be very hard to beat for thrift and vigour of roots, wood, leaves, bark, fruit—in fact, for anything pertaining to a Pear tree. Of course I do not assert that good trees cannot be grown on a sandy soil, but I must believe such growth and adaptation very exceptional indeed, and should always select a strong yellow clay for Pears and Plums, where possible. Nor would I seek to fertilize such soil too strongly; most of clay meadow land, properly drained and well tilled, will grow Pears to perfection.—H. HENBRICKS, in "Cultivator" and "Country Gentleman."

available for planting out, it is a very easy matter to obtain these early runners, as when once they begin to make fresh roots in the open ground, they emit them in the greatest profusion, and having no crop to carry, as other established plants usually have, the runners they form are invariably much more robust than any that are produced in the ordinary way. This being the case, those who would be well prepared for next year should commence turning out any from which the fruit has been gathered, as every day lost now is so much less time for them to grow and mature their crowns. In doing this, choice should be made of a convenient situation for the pots, and one that is readily accessible for giving them water, of which there must be no stint, or their progress will be at once checked, and the leaves subject to the attacks of red spider, a pest that assails them both indoors and out if they be neglected in any way. The practice with us is to open a trench about half a spade deep, near the margin of any of the walks bounding or intersecting the kitchen garden, and in the bottom of this to work in a good coat of decomposed manure much after the

manner adopted in preparing for Celery, and in the trench so formed the plants are placed at about 12 in. or 15 in. apart, and the soil filled in firmly around them, which keeps the crowns below the general level, and obviates the difficulty of giving them the requisite supplies of water to induce a free formation of runners, and to support them till they become well established in the pots in which they are layered. The advantage of having them planted near the margins of walks is twofold; for, independent of the facility with which they may be watered, a firm, hard bottom is secured to the pots, which is a very important matter, taking into consideration the trouble and annoyance worms cause by blocking the drainage, and the injurious results that follow therefrom. Soot acts as a great deterrent to their ingress, and, as it is likewise an excellent fertiliser, a small handful should be scattered over the crocks before filling the pots with soil, the latter of which ought to be in a moderately dry state so as to admit of being rammed or pressed in firmly, a condition that checks that undue tendency of leaf growth to which all Strawberries are more or less liable when their roots can rumble at will. Turfy loam that has been laid up for a year for the herbage and fibre to become decomposed is the best soil in which to grow them, but if this be naturally of a light character it may be greatly improved by the addition of clay or marl, either one or the other of which may be obtained in most places. In order to get it to mix regularly with the loam the clods should be exposed to the sun and air or laid in sheds to dry, when it will be found to crack and fall to pieces, and may then be beaten up by a light rammer or the back of a spade almost as fine as dust, in which state there will be no difficulty in getting it incorporated with the loam to give the requisite consistency. The quantity used must depend on the nature of the soil to be treated, but in no case should it exceed one-sixth, otherwise the tendency is, from the repeated waterings it has to undergo while the plants are growing and fruiting, to become close and sour, or when a little dry to bind so closely together as to crack and shrink from the sides of the pots. Although no advocate for mixing manure with soils for potting in a general way, the limited amount of root-room Strawberries have when so confined renders such a course in their case necessary, but what is applied should be of a mild form, and that has been laid by for a long time in some dry place to sweeten. Such as is obtained from cows, deer, or sheep, is by far the best for the purpose, a store of either one or the other of which should be kept ready to hand in all gardens for uses of this kind, and for top-dressing Pelargoniums and other soft-wooded plants.

Size of Pots and Layering.

Much diversity of opinion exists as to the size of pots most suitable for the growth of Strawberries and the number of plants each should contain; but from long experience, and having tried both small and large, I am decidedly in favour of the size known as thirty-twos or 6-in., as I have always found them thrive better in those than in any others, especially for late work; for very early forcing, however, and for such moderate-growing kinds as Black Prince, Keen's Seedling, and Vicomtesse Héricart de Thury, 4½-in. pots may be used, and if these be plunged in leaf-soil in others a size larger to screen them from the sun and prevent too rapid drying of the roots, very fine fruit may be obtained, and of a superior flavour to that from plants requiring a more frequent use of the watering-pot. In layering the best plan is to put the runners at once into the pots it is intended for them to remain in, as that saves further time and labour in shifting them on, besides which, their growth is much faster on account of the assistance they derive from the old plants, as these continue to feed them as long as they are attached. On several occasions I have tried them in both ways—that of layering them as above, and in the ordinary manner in 3-in. pots, and the result has been in each case considerably in favour of the former, which is not to be wondered at, seeing that they receive no check from first to last, but go on steadily growing till they ripen in the autumn. For securing them firmly to their proper position in the pots at the time of layering, there is nothing more suitable than small-sized pebbles laid close to the base of the runners, as they shade the soil in that particular part, and from the way they intercept and attract moisture beneath them, main-

tain a more uniform state, highly congenial to the formation of roots. Where these cannot be readily obtained, short, stiff pegs made from old Birch brooms may be substituted; and in placing the layer a slight indentation should be made in the soil to admit of the runner being covered slightly before or after pegging it down. This done, they must be well attended to with water, but care must be exercised that this is never used in excess, particularly for the first month or so after layering, as it should be borne in mind that the plants during that time have but few roots to absorb it, and what is therefore needed is a uniform degree of moisture to encourage their formation as quickly as possible. As growth proceeds and they begin to fill their pots, weak liquid manure given two or three times a week will be of the greatest assistance; and this aid should be afforded them till the end of September, after which all they will require is sufficient water to keep them from flagging till stored away for the winter. Where cold frames and any old lights to ward off wet and frost can be spared, choice should be made of them for shelter, in preference to packing the pots in leaves or ashes on their sides, as in the latter position the dry, searching winds have such an effect on the crowns of the plants as to cause them to shrivel, and it often occurs that the roots are not in a much better condition. In pits or frames plunged near the glass in a bed of half-decomposed leaves, they are as snug as it is possible to have them, and from their being so circumstanced they respond readily when heat is applied after the turn of the year. To obtain ripe fruit in March, which is as early as is practicable in most places, the plants should be started the first week in January, and the best situation for them for the first month or so is a pit having a hot-water pipe along the front and a bed of gently fermenting leaves in which to plunge the pots, so as to induce an active state of the roots and assist them in pushing up strong heads of bloom. Any light, airy shelf in a Peach-house or Vinery at work will do almost equally well, but wherever placed, the forcing during the early stages must be slow, as Strawberries are impatient of much heat, an excess of which before they are fairly set is sure to cause failure. Want of air will likewise produce the same results, indeed it is even more fatal than a high temperature, especially while the plants are in bloom, as there is no chance of the pollen ripening and becoming distributed in a close, moist atmosphere; and unless this takes place, it is impossible for the flowers to become properly fertilised or for the fruit to swell, except in the most irregular manner. Light, air, and sun are the three essentials in early Strawberry forcing from the beginning to the end of the crop, and therefore the plants should be ranged as close to the glass as can be done without their foliage actually touching it, and in such a position as to be near the ventilators where the atmosphere is kept in continual motion. So situated, and with plenty of water, the fruits will finish off with that rich, glossy, varnished appearance, that is a sure index of good flavour. In order to get them of large size they should be thinned out as soon as set, in doing which those only on the main stems should be left, as they always swell off the best, and are the handsomest when ripe. During the time they are swelling, clear liquid manure should be freely given till they begin to colour, but not after, as it imparts an unpleasant taste to the fruit. To support the weight of fruit while hanging on the plants, a piece of small twine strained tightly along the front of the row is a much quicker and more satisfactory way than applying a stick or bushy twig to each pot, and it will last during the whole of the season. To prevent it drooping in the middle when it becomes a little slack, a tack driven in the rafter or sash bar every 3 ft. or 4 ft., with a piece of twine run from each and attached to that strained as a rest for the fruit, will keep it in its proper position.

Culture in Beds.

In forming fresh beds, the most important thing is to trench the ground thoroughly, and next to this to manure heavily with short, cool manure, such as that from the cow or pig yard, and this done, it must be poor soil indeed that will not produce good Strawberries. Trenching, however, as generally carried on by bringing the subsoil to the surface, is a great mistake, as it takes years to get it in a fit state for the roots of plants to feed on, and from its inert condition, through the

absence of vegetable matter, it binds so closely as to be almost impervious to atmospheric influences. It follows, therefore, that in breaking up the land, much of the bottom should not be brought to the surface at any one time, but the manure should be kept well down, for the double purpose of gradually enriching it, and as a storage of food for the roots during a long continuance of dry weather. Although Strawberries require a deep, rich soil, it should by no means be loose and hollow, but made as firm and compact after the trenching as possible, or the produce will be little else than leaves. In gardens, where there are forced plants now turned out, or such can be had, they are much preferable for making fresh beds to runners, as being already well established with large balls, the plants go to work at once, and bear enormous crops the season after planting. So satisfied am I with these that I never use any other, except it may be the runners of a new variety or any kind I do not force, and I always find the pot plants make the best beds, and are more satisfactory in every way. The practice here is to make a fresh plantation every season, and to destroy one of like extent, so that none stand longer than two years, as after that they do not produce fruit of sufficient size to make it worth while keeping them. The system with many is to take runners at random any time in August or September, and to dibble them into any spare ground from which a crop has been cleared, with little or no preparation beyond raking it over or just digging it up, but under such unfavourable conditions the yield is never satisfactory. In planting out the forced plants, the ball should not be disturbed, but dropped whole in the ground, and the soil made firm, leaving it in a basin-like form to hold water to be given occasionally till the plants can take care of themselves. So treated, they will bear a fair crop in the autumn after others are done, a time when they are sure to be doubly appreciated. The best to grow for outdoor work are Vicomtesse Héricart de Thury, President, Sir Charles Napier, Sir J. Paxton, British Queen, and Elton Pines, all of which ripen in the order they are placed. As most of these are strong growers, they should not be planted nearer than $2\frac{1}{2}$ ft. row from row, and 18 in. or 20 in. from plant to plant, that sun and air may be freely admitted amongst them to colour and finish off the fruit. Directly this is gathered, all runners and shabby, superfluous foliage should be cleared away, and the beds hoed over to free them from weeds and loosen the surface, that any rain that falls may be able to penetrate freely. As a winter protection, a mulching of rotten manure is the most effectual, but under no consideration should the ground be dug over or disturbed in any way beyond a slight hoeing, as in so doing the surface and most important roots would be destroyed.

Protecting the Fruit.

To protect the fruit from being splashed by rain, nothing answers the purpose better than short stable litter taken just as it comes, but when so used it must be put on early in the spring, so that the rain may wash any manurial matter away, and allow time for it to become sweet and free from objectionable smells. In heavy lands or where slugs are troublesome, as they always are in Strawberry plantations where they abound, I have found the Bracken that has been used during the winter for covering up frames and other purposes to be the best protectors against these depredaters. After being knocked about and so thoroughly broken up as it is when done with in the spring, the splintered stems and numerous points that stick out in all directions are almost as sharp as needles, and form insurmountable obstacles to the slugs, so that any one pestered with them may, by using old Fern instead of straw, put such pests at defiance.

S. D.

THE GREAT FLOWER-PAINTERS.

JEAN BAPTISTE MONNOYER—BORN 1635, DIED 1699.

THE works of the celebrated French flower painter Monnoyer, known simply by the name of Baptiste among his contemporaries, are in every way a contrast to those of his great Dutch rival, Van Huysum. The works of Baptiste are almost always of a conventionally decorative character, and yet wrought with so much taste and skill, that in a distinct line of art they may rank as artistically equal to the truer, and in every way more natural works of the Dutch school. The best of his showy and yet graceful compositions are to be found enriching the white and gold panellings of the Trianon, at Versailles, at Marli, and in some of the apartments of the older portions of the Louvre. In these compositions he displayed an elegant and original method of grouping and balancing his designs that is truly admirable, and the flowers themselves, though compelled to play a specific part in the combination of those colour-harmonies in which he excelled, were at the same time painted with such an accurate perception of their forms, characters, and tone of colour, that the portraiture is always unmistakable. His Roses are touched off with a facile mastery that at once places them far above the rank of ordinary decorations; and though disposed of in arbitrary fashion to suit the general purpose and position of his compositions, they never lose the character of true Roses; and the same may be said of all the other flowers, the beauties of which he subdued, as it were, to his special purpose. The flowers he considered most amenable to his method of treating decorative art were Roses, Poppies, Anemones, Larkspurs, and Jasmine, most of which, under different and skilfully contrived aspects, are introduced in nearly all his compositions. He, however, managed to heighten and vary their general effects by means of rich adjuncts of various kinds; among which were superbly brocaded draperies, often enriched with heavy and glittering bullion fringes, gracefully falling over polished marble or porphyry slabs, in which both flowers and drapery were partially reflected with excellent artistic effect. He also introduced, still more frequently, richly-chased vases of gold or silver, painted with surprising realism, which imparted a majestic character and gave great solidity and importance to his decorative compositions. Occasionally, glistening helmets or even embossed cuirasses were made to take part in the arrangement of that elegant system of ornamentation which he may be said to have created, and which he carried to its highest pitch. He soon became celebrated all over Europe for his skill in interior ornamentation, and was invited to London by Lord Montague, along with his well-known countrymen, La Fosse, the facile painter of historical and mythological subjects, and Rousseau, celebrated for his architectural perspectives, which were often painted with such skill as for a moment to deceive the eye. The three French artists were employed upon the decoration of Montague House, especially on the staircase walls, and the panellings and ceilings of the more important apartments, upon which Baptiste lavished some of his rarest work. The artistic labours of these three French artists were not destined to a very long existence; they were swept away with the noble residence, of which they were the chief ornament, in order to obtain a site for the present British Museum. Jean Baptiste Monnoyer did not confine himself exclusively to decorative compositions, but occasionally condescended to be a simple painter of flowers, for themselves. Some of his pictures of this class have a charm entirely their own, arising from the free, and ever graceful and facile touch of the painter; but they all have, notwithstanding the easy freedom with which the grouping is managed, a certain character of ornamentalism rather than of natural treatment. Nevertheless, the beauty and ease of his characteristic delineations of each spray and flower will always be at once admitted as the meed due to the painter, as is well shown in the annexed specimen of one of the most successful of his simpler compositions, of which we are enabled to give a well-executed wood engraving. The seemingly careless play of the Poppies, and the high finish of the magnificent leaves, the glaucous green of which is so well rendered, are indisputable evidences of a master-hand, while the Jasmine sprays and the spike of Larkspur arc, with the other features of the composi-

Best Kinds of Strawberries for Forcing.—Generally, Strawberry forcing has not been a success this season, a circumstance which I attribute partly to the immature state of the crowns, occasioned by the wet, sunless autumn which we had, and partly to the absence of sunshine ever since the beginning of the present year. I may remark, however, that some kinds have done tolerably well, whilst others have failed. Vicomtesse Héricart de Thury has been extra fine for the season; President, moderately good; Sir Charles Napier, poor; and Keen's Seedling, bad. Has this variety, which used to stand at the head of the list, been crippled by over-production, both as to plants and fruiting?—H. W. W.

tions, equally successful in their dashing style, and serve to prove that in his special walk of art Monnoyer was an accomplished master.

H. N. H.

PLATE LXXIV.

THE CLERODENDRONS.

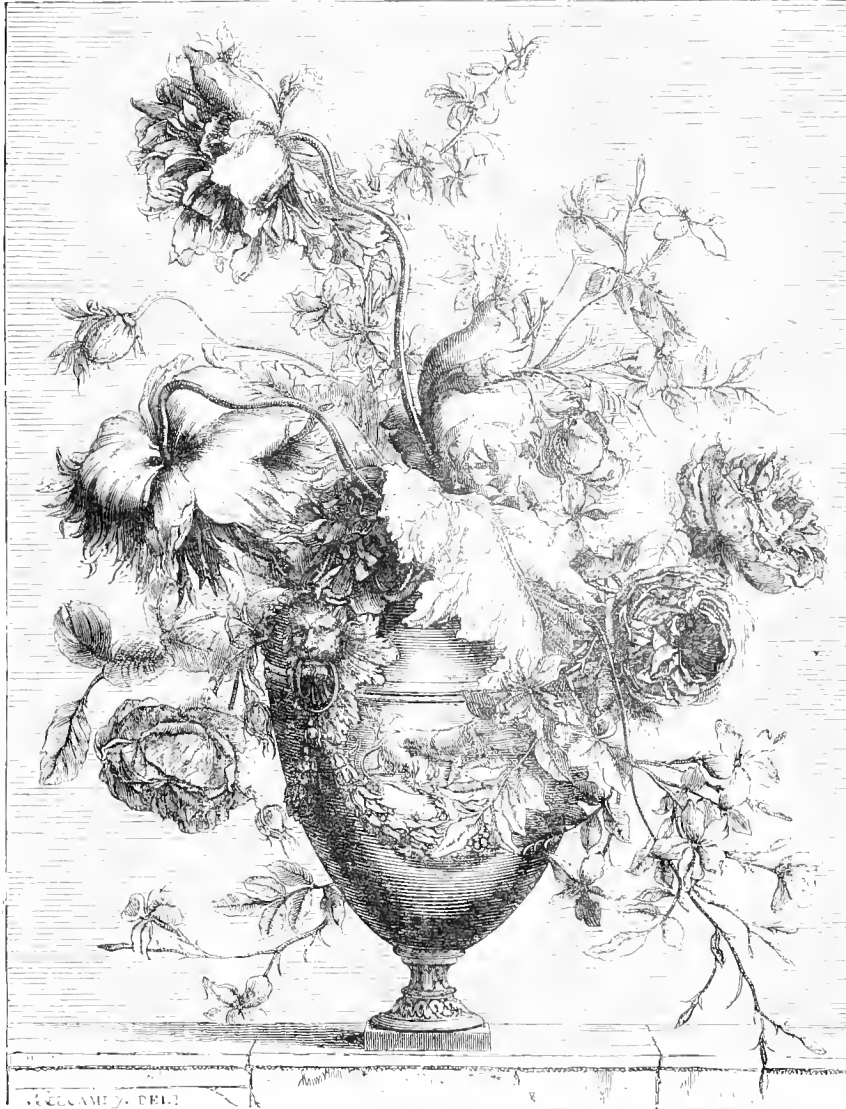
(WITH A COLOURED FIGURE OF *C. SPECIOSUM*).

By THOMAS BAINES.

THERE are three very distinct sections of Clerodendrons that are extensively grown in stoves: one consists of deciduous twiners, of which *C. Balfouri* may be taken as a representative; a second is *C. splendens*, a variety of which is represented by the annexed plate; this is also a twiner, but differs from the last-named section in being evergreen and requiring different treatment; then comes the third division, which consists of evergreen shrubs very distinct, and which need treatment different from the others. A selection from these sections may with advantage find a place amongst the best collections of plants; they have much to recommend them, inasmuch as they grow freely and succeed with less attention than most subjects, not being impatient of either drought or moisture to such an extent as the generality of cultivated plants. The Chinese *C. fragrans* is one of the sweetest-scented flowers grown. Another advantage which Clerodendrons possess is—they can be flowered in either a large or small state, several of them being alike suitable for twining round a pillar or for draping a rafter; where room is a consideration, there is another property possessed by the shrubby species that is deserving of attention—it is the way in which they may be cut in every autumn, so as to occupy little room during the winter; not only will they bear this treatment without injury, but to keep them in their wanted shape it is necessary to so reduce their size as to literally head them down. As regards cultural requirements, let us commence with the shrubby kinds, of which we may take *C. fallax* as a good representative. This

is a vigorous-growing shrub, with ample, lively green leaves supported on stout petioles 8 in. or 10 in. in length; above these, from the points of the current season's shoots, spring the flowers, which are bright scarlet in colour and borne on very large stately erect panicles 10 in. in diameter and 1 ft. high. This kind strikes readily from cuttings, which can generally be obtained about the end of June. When they can be got 6 in. long, they should be taken off with a heel. They should then be inserted singly in 3-in. pots in half sand and finely sifted loam; the soil should be kept moist and the propagating-glasses sufficiently close to prevent the leaves from

flagging; these, from their size and somewhat soft texture, will not bear so much air as some kinds of foliage until roots are formed. They should be placed in a temperature of 70° at night and allowed 10° more in the daytime during bright weather. They will root in a few weeks, when the glasses may be removed and the plants placed for a week or two in a light situation; they should then be moved into 6-in. or 7-in. pots, according to the quantity of roots which they are found to have made when turned out of the cutting-pots. They should be potted in good fibrous loam, not broken too fine; to this should be added one-fifth rotten manure and an equal quantity of sand; make the soil quite firm in the pots, and place them on a shelf as near the glass as they can be got; this is important, in order to keep them dwarf and short-jointed, upon which, in a great measure, depends their good appearance afterwards more than in the case of most



Works of the great Flower-painters:—Vase of flowers by Monnoyer.

plants, for if allowed to become at all drawn, no subsequent treatment can furnish them with stout, healthy leaves down to the pot until they have been headed down, which would entail the loss of a season. They must never be allowed to suffer from want of water, or the leaves will be injured. Syringe freely every afternoon both the upper and under surfaces of the foliage; they will require slightly shading in very bright weather until the middle of September, when it should be discontinued; give more air, then cease syringing, and reduce the temperature to 65° at night and proportionately lower during the day, lowering it 5° more as the days get shorter.



During winter little growth will be made, and correspondingly less water must be given; but as these *Clerodendrons* do not require the wood to be ripened so much as that of most hard-wooded plants, they must never be allowed to get too dry at the roots so as to cause the leaves to flag, or they will be injured. Keep them where they will have plenty of light, and continue this treatment until the middle of February, when the temperature should be raised 5° day and night and the plants moved into 10-in. pots, now using the soil in larger pieces than before, but with a similar quantity of manure and sand added. After this be careful not to give too much water until the roots have got well hold of the soil; towards the end of March raise the temperature 5° more, and begin to syringe overhead in the afternoon; they will now grow fast, and should have a little air in the daytime; as the sun gets powerful, a slight shade will be necessary in the middle of the day. They make roots very freely, and by the end of April they should be moved into 13-in. blooming pots, which size will be large enough for the present season, using soil such as that recommended for the previous shift. The temperature may now be kept at 75° at night if the plants be required to flower early in the season, but with this heat they must be placed near the glass, and be allowed a moderate amount of air every day. About the beginning of June they should show bloom, when they may have manure-water given twice a week; in a few weeks the flowers will begin to open, when the plants can be moved to the coolest end of the stove, or if a house be at hand where an intermediate temperature is kept up, they may be removed to it, which will prolong their time of blooming. When the flowers are over, if the spike be cut out at the bottom, just above where it springs from the upper leaves, and the plants be again subjected to a brisk heat, they will push up one or more shoots from the point where the flower-stem was removed, and will bloom again towards the end of August or beginning of September; after this they may be cut down to within 8 in. or 10 in. of the bottom, and should be kept about 65° at night and a little higher in the daytime, syringing daily, but not giving much water to the soil until they have again begun to grow; the temperature may be lowered as in the preceding autumn, wintering them as before. As the days lengthen give more warmth in March, take them out of their pots, and remove one-third of the old soil, putting them in pots 2 in. or 3 in. larger; press the soil moderately firm, and treat them in every way as during the previous summer, except that they will not require potting a second time; they will flower again twice, but this time they must not be cut back after the first flowering, further than just removing the flower-stems. Plants thus treated will last for years, and may if desired be grown in 18-in. or 20-in. pots, in which way they will attain a large size, bearing eight or ten spikes of bloom at a time.

Clerodendron Kæmpferi.—This handsome South American species also bears scarlet flowers, and like *C. fallax*, it can be raised from seeds sown as soon as ripe in autumn, but in order to obtain them the first flower-stems must not be removed, but allowed to remain on the plant until the seed is matured. Sow the seeds singly in small pots, covering them with $\frac{1}{4}$ in. of soil, they will soon vegetate, and will require treating in every way similar to young plants raised from cuttings.

C. fragrans fl.-pl.—This is a weaker-growing plant than the preceding, producing close compact heads of pinkish-white double flowers, so highly yet agreeably scented as to be preferred by many to those of *Daphne indica*, *Tuberose*, or the old *Clove Carnation*. It requires similar treatment to the two first-named kinds, but does not need so much root-room. It is a native of China. All the above are sufficiently stout in their habit of growth as not to need much support, except a single stick to each flower-spike.

C. splendens.—This is an evergreen twiner of moderate, but not very quick growth; the flowers, which are deep scarlet, are produced in slightly drooping panicles from the young wood, and are very handsome. This species is well adapted for clothing a pillar or rafter, and looks well trained on a moderate-sized wire trellis. It is from *Sierra Leone*, and can be propagated by means of cuttings, but these require to be selected with judgment, as, if made from hard wiry shoots they do not either root or grow freely, and, on the other hand, if too soft they generally damp off. The best cuttings are those obtained from a strong mature branch that has been cut back; the young shoots that afterwards break from it should be taken off with

a heel when about 8 in. long; these can be got in the summer, and will root in sand; they should be placed singly in small pots under a propagating glass in a temperature of 75°, and when well rooted they should be moved into 6-in. pots in fibrous peat, to which has been added one-sixth of sand. When they begin to grow place a stick in each pot for support, giving them a light situation, with air every day, and shade when the weather is such as to require it, syringing overhead when the house is closed until autumn; reduce the heat 5° day and night as the sun gets less powerful, and in winter a night of temperature of 65° will be sufficient. About the middle of February give them 5° more warmth, which will set the roots moving, and a month afterwards move them into 10-in. pots, again using good peat and enough sand to keep it open; pinch out the points of the shoots in order to induce them to break back. During the spring and summer they will bear a temperature of 75° at night, giving air when the thermometer rises to 80°, shading in sunny weather during the middle of the day, syringing freely overhead when the house is closed, which should be done early in the afternoon. As the growth requires support, put in each pot four or five sticks, round which train the shoots, but do not allow them to become entangled one with another, which often happens if not attended to. Keep them in these pots during the season, again lowering the temperature in autumn, and discontinuing the use of shading and syringing; winter them as last year, gradually raising the temperature when the days lengthen sufficiently to require it. About the same time in the spring shift them into their flowering pots, which for this first season should be about 13-in. ones, put in soil similar to that previously recommended, and place a wire trellis to each plant, over which train the shoots evenly. Give heat, shade, and air as during the previous summer, and also water to the roots and overhead. By midsummer they may be expected to show flowers, which will continue to open and remain in good condition for several weeks, during which time the plants may be placed where they can be kept a little cooler, but they must not be set where they will be subjected to draughts or to too low a temperature, or the flowers will fall off before they open. Keep the shoots regularly trained as hitherto; after the blooming is over, they may, if too full of growth, be slightly cut in and kept through the autumn and winter as before. Again about the time that growth is commencing the plants should be turned out of their pots, removing any loose soil that may exist; but they must not be shaken out, as is often done in the case of deciduous subjects, or the leaves will suffer; move them into pots 3 in. larger, using soil the same as before, and treating them in every way similarly. They will last for many years by removing a little of the surface-soil each spring without disturbing the roots too much; they will also be benefited by having manure-water in the growing season. When this *Clerodendron* is used as a climber it is better to grow it in a pot, as from its moderate habit of growth the roots are not so well calculated for planting out. *C. speciosum*, which is a handsome variety of *C. splendens*, may be treated in every way like it.

C. Balfourii.—Among deciduous, twining *Clerodendrons* this is much the best. It is a vigorous, quick grower, and may be either planted out or grown in a pot, for which latter purpose it is well adapted either for flowering in a small state or for growing into large specimens. It strikes freely from cuttings, which should be taken off with a heel as soon as they are 8 in. long, and if the plants have been started about the beginning of February, the cuttings will be large enough to take off in April. Put them singly in 3-in. pots filled with two-thirds sand to one of loam sifted fine; being very soft, they require to be kept moist or they will flag if much air be given; keep them until rooted under a propagating glass in a night temperature of 70° with a little more heat during the day; give just as much air as will prevent damping; they will root in a very short time, after which place them where they will receive a fair amount of light for a few weeks; then move them into 6-in. or 7-in. pots. The soil should consist of four parts good, turfy loam to one of rotten manure and sand in equal quantities, press it firmly in the pots and pinch out the points of the shoots to induce their branching out; let them have plenty of light and water freely; when the roots have begun to move well they will bear a temperature of 75° at night and 10° higher with sun-heat, syringing overhead at the time when the house is closed. When the shoots have grown three or four joints past the point they were first stopped to, they should be again stopped. By the end of July they want moving into 10-in. or 12-in. pots, but this time do not break the soil fine; each pot should now have four or five sticks a yard high placed just inside the rim, round which to train the shoots; very little shade is required, full exposure to the light being necessary to induce their flowering profusely; give a moderate amount of air all through the summer and increase it in September, at the same time discontinue the use of the syringe. About the close of the month water should be withheld from the soil until the leaves flag considerably, after which give a little to

freshen them up, again allowing the soil to become dry so as to cause the foliage to droop before water is applied; keep on repeating this process, which will stop further extension of their shoots, harden up the wood, and ultimately cause the leaves to turn yellow and fall off; after that reduce the temperature to 55° during the winter, giving no more water than will just keep the soil slightly moist. When starting them into growth, which may be at any time from the end of February to May, they must have the ball of earth well moistened at the time when they are subjected to a higher temperature; this will be best managed by soaking them in a pail of tepid water, letting them stand pot and all in it for twelve hours; after this raise the heat 5°, at the same time training the shoots neatly round the sticks; when they have made a few inches of growth, the temperature may be raised to 65° at night, giving 8° or 10° more during the day. Syringe regularly overhead in the afternoon; in a few weeks they will show flower which will grow rapidly, and as a rule begin in 8 weeks from the time the plants were first started. If bloomed early it will be necessary to keep them in a temperature similar to that in which they have been brought on, but if not flowered until later they may be moved when in bloom to the conservatory, where they will last in good condition for several weeks. After this they may be at once shifted into 16-in. or 18-in. pots; the shoots should then be nipped from the sticks, cut back to 4 ft. or 5 ft. in length, and each plant trained near the roof in a house or pit where they will receive plenty of light, with a temperature during summer such as that of the preceding summer, treating them in other respects similarly, and drying them off in autumn as before. After this a strong wire trellis should be fixed on the pot, over which the shoots may be evenly tied. Winter them in a similar temperature, and again bring them into flower when required. After blooming this season they should be well cut back, turned out of their pots, and one-third of the ball of earth removed, replacing them in the same pots in new soil and growing them through the season as recommended for the last. They will now be benefited by manure-water when growing; managed in this way they will last for several years. If required for planting out, they should have a well-drained border in which there is not too much room for the roots, or over-luxuriant growth may be the result; the soil ought to be similar to that which has been recommended for pot culture, drying the plants off similarly in autumn. After the first season a little of the surface-soil should be removed each year, replacing it with fresh material, and giving manure-water liberally: cutting well in each season after flowering. C. Thompsoni and C. Rollisoni will succeed under the same treatment.

As regards insects deciduous Clerodendrons are not much subjected to them: red spider will sometimes make its appearance, and, if not removed soon, injures the leaves. For this the best preventive is a free use of the syringe. The shrubby species are often attacked by both brown scale and mealy bug; but diligent use of the syringe and sponging will keep them in check. When they are headed down affected plants should be well washed with Insecticide. The large-leaved kinds are sometimes infested with red spider, if the under sides of the leaves be not kept well syringed. C. splendens and C. speciosum should be treated similarly if troubled with insects.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Sweet-scented Amaryllis.—Is it customary for the blooms of Amaryllises to be sweetly perfumed? I was not aware of it until this spring, when for some days passing an example of a garden hybrid in my greenhouse, I was struck with a most exquisite perfume, which I found proceeded from this plant. —JOHN E. DANIEL, *Epom.*

Draining Cutting Pots (see p. 352).—Inverting a flower-pot within another for drainage is by no means new; on the contrary, it is generally done in the case of soft-wooded plants and also in that of other plants that require a good, brisk bottom-heat. Seeds such as those of Cyclamens, Cinerarias, Primulas, &c., may also be raised successfully in pots drained in this way.—G. A. D., *Windsor, Essex.*

Adiantum Farleyense as a Basket Plant.—In no way can this beautiful Fern be better grown than in wire baskets suspended from the roof of the house in which it is kept. Thus treated, the fronds hang down gracefully, and under favourable circumstances the crowns of the plants soon cover the soil both at top and bottom. This Fern looks well cultivated in this way.—S.

Narcissus Bulbocodium in Pots.—The Yellow Hoop-Petticoat Narcissus forms an attractive pot plant during March and April, if grown under advantageous circumstances. For this purpose bulbs of it require to be potted early in autumn, five or six being placed in a 6-in. pot, and set in a cool frame or pit, protected from frost and heavy rains. Thus treated, they will flower several weeks earlier than out-of-doors, and the blooms, which are of a more delicate texture, are drawn well up above the foliage. Such plants form effective objects for front rows on conservatory stages, or for placing in vases or on window-sills.—C.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Vines.—Thin Grapes when the berries have attained the size of small Peas; any delay after that time is attended by two evils, viz., the work is much more difficult to perform, and the impossibility of using the scissors without rubbing the berries that are to remain. In Grape thinning amateurs are more frequently led to make mistakes than in almost any other operation in gardening. When Vines are strong and healthy, a great many more bunches are formed than they are able to sustain, and there is too often a great reluctance to reduce their number sufficiently; the result of this is overcropping, which, especially whilst the Vines are young, frequently injures them to such an extent that they never thoroughly recover. It is a common occurrence to see healthy, strong Vines allowed to carry as much fruit in the second or third year of their bearing as they ought to have borne in two years, during which season, if attentively noticed, they will be seen to have scarcely grown perceptibly thicker; whenever this occurs, the wood of which the young rods are composed becomes prematurely solidified, and will never afterwards acquire the same size and strength that it would have done had the Vines not been overburdened with fruit. The evil may be in some measure corrected by bringing up a young cane from near the bottom, or within 2 ft. or 3 ft. of the ground; but although this, if fairly treated, will often attain a thickness and strength of which the overcropped cane from which it proceeds is not capable, still the injury done in the first instance can never be fully repaired. Vines the second year after planting, however well they may have grown, should not be allowed to carry more than two or three moderate-sized bunches, the third year six or seven, the fourth about a dozen, and the fifth—at which time, if all have gone well, they will have furnished the full length of the rafter—they may be permitted to bear from eighteen to twenty, according to the size of the bunches, for it is not the number that tells upon the energies of the Vines, but the collective weight of the fruit. The fruit-bearing capabilities of Vines when in good condition are in a great measure regulated by the head-room they have, with length of rafter and number of canes allotted to each Vine; for instance, in a house that admits of their attaining a length of from 20 ft. to 24 ft., they will bear without injury a correspondingly greater weight of fruit than where they have only room to become 16 ft. or 18 ft. long; in like manner, when a Vine is furnished with from two to six rods, with sufficient room and good soil for proportionate root development, the bearing capabilities of each rod will be almost equal to the one cane of Vines confined to a single rod. In all cases it is much better to undercrop than overcrop. A healthy, fully-established Vine, with the ordinary length of from 18 ft. to 20 ft. of rafter, will bear every year from 18 lb. to 24 lb. of Grapes and mature them thoroughly, providing the foliage be kept clean and healthy through the season and free from its worst enemies, red spider and thrips. In all cases where the house is exclusively devoted to the Vines and no plants are grown underneath, retain as much foliage as admits of exposure to the full complement of light, for the more well-developed leaves they carry the more strength and vigour the Vines will attain, but on no account should the foliage be allowed to become crowded, for where one leaf grows over another, the under one, being deprived of sun and light, is so thin, soft, and weak in texture as to be unable to perform its allotted functions, and has a weakening rather than a strengthening influence upon the Vine. Where plants must be grown it is better to reduce the number of Vines by having them further apart, so as to allow as much light as possible in between them, instead of keeping the shoots of the greater number of them shortened in too closely. Keep all laterals stopped in close. With old Vines that have become somewhat exhausted through overbearing or the ravages of insects, I should recommend the young rods to be taken up from the bottom. A number of shoots are usually each spring emitted from the stem within 2 ft. or 3 ft. of the base; select that in the best position, the lower down the better; if this shoot be encouraged it will generally reach the top of the house the first season. At the time of pruning it will require shortening to about one-third its length, cutting the bottom spurs of the old cane completely away up to this point to make room for the bearing shoots of the young one; the third year it will occupy all the space, previous to which the old cane must be cut away. Stop and thin the shoots of late Vines.

Peaches in Houses and upon Open Walls.—In the house first started the fruit by this time will have stoned, and should receive the final thinning; here, again, it will be well not to allow the trees to carry too many fruit, for, although overcropping in the case of the Peach does not inflict permanent injury to so great an extent as it does with the Vine, it is nevertheless injurious, and its effects for the present year on the fruit will not only cause it to be

much smaller, but also deficient in quality. Remove all superfluous shoots that will in any way overcrowd each other, or shade the fruit; to prevent which, tie in the young wood remaining, and remove all leaves that overlap the fruit, as, where there is any interception of the sun's rays after this time it will not be well coloured, which so greatly improves its appearance and flavour when ripe. See that the soil in which the roots are placed is well supplied with moisture; a deficiency in this respect now would be more hurtful to the current crop than at any other time, as the demands upon the roots are at the utmost. Syringe freely and continuously, getting the water well to the under side of the leaves, where red spider first effects a lodgment; it generally makes its appearance about the base of the trees, and whenever the leaves assume a slightly yellow hue they should be examined, and if the insect be found before it has had time to spread, and the leaves be carefully sponged with weak Gishurst water, in the proportion of 2 oz. to the gallon, it may be stopped from extending farther; but, where the syringe is carefully used daily, so as to wet the leaves on both their upper and under surfaces effectually, it will not make much headway till the fruit begins to ripen. Thin the fruit and disbud in late Peach-house, tie in the shoots, and here also use the syringe freely. Peaches on open walls should be well syringed two or three times a week, the long, protracted, cold winds we have had having checked their growth to such an extent as to make them much more subject to the attacks of aphides.

Cucumbers.—Thin out the shoots of the earliest Cucumbers before they become too much crowded, thereby preventing a manifest waste of strength. They will be maintained in a healthy-bearing condition until the end of the season, if all unnecessary growth be removed as it makes its appearance; it is also essential that the plants be kept quite clean from aphides and red spider, which must never be allowed to obtain a footing. As soon as a fruit is perceptible, pinch the point off the shoot immediately beyond it; where the growth is permitted to run a joint or two farther, it always has a tendency to cause too much crowding, to the great injury of the plants.

Melons.—Regulate the growth of Melons as it proceeds, thinning the shoots moderately, but not to such an extent as with Cucumbers. Pot off the last-sown Melons to be transferred to frames set at liberty when cleared from bedding plants, putting them either in the early Melon frame or on a separate bed to themselves. Manure should now be got ready, well shaken up, and watered more or less according to its dry or wet condition, for beds for late Melons, which must be at once made up, or the summer will be too far advanced before the fruit gets ripe.

Vegetable Marrows.—Where these are required early a slight hotbed should be made for them, on which place a frame, turning the plants out in it; by the time they have filled it the weather will be sufficiently warm to admit of its being removed altogether. Sow more seeds in a hotbed, Vinery, or greenhouse, planting out next month.

Tomatoes should now be placed in a cold frame with plenty of air during the day, so as to have them well hardened before planting; where they are turned out whilst in a tender state, even if the ensuing weather be fine, they frequently remain dormant for two or three weeks, which seriously interferes with the quantity of produce, as if the growth be at all checked, most of the warm weather is over before the first fruits are ripe.

Roses will require special attention, as the maggot is making its appearance in large quantities, and unless promptly destroyed now whilst curled up in the leaves before the buds get to any size, the greater portion of the flowers will be rendered worthless. To destroy, and, what is still better, to prevent aphides, syringe freely with soapy water; this, if effectually applied two or three times, will kill those that are matured, and be so distasteful to them through the sediment which it leaves on the foliage, that the females do not deposit their eggs where it is present.

Kitchen Garden.—More Peas should be sown, and everything possible ought to be done to insure their bearing freely and to prolong the season of their produce, as the early sowings in many localities promise to be comparative failures, the cold weather and cold state of the earth having produced but a stunted, slow growth, and thereby exposed them for a longer time than usual to the ravages of birds and slugs, which have been more than ordinarily troublesome. In many places, particularly in the driest parts of the country, the greatest difficulty to contend with in these later sowings of Peas is mildew; the best preventives to which are an open situation fully exposed to the sun and air, thin sowing, with plenty of room between the rows, with a good quantity of manure dug in deeply so as to support the roots when they have descended a considerable depth. To effect this latter purpose open a narrow trench for each row 12 in.

or 15 in. wide and one spit deep, digging in 6 in. of good rotteu manure in a moist condition; then draw in the soil that has been taken out in sufficient quantity to leave the trench about 4 in. deep after it has been moderately trodden with the feet, in which sow the seeds, covering them with the remainder of the soil taken out; so treated, with copious waterings in dry weather from the time they bloom onwards, they will keep on bearing without mildew in situations in which it is possible to avoid that parasite.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

May 21.—Potting Vesuvius and Dr. Lindley Pelargoniums for autumn blooming; also young Cyclamen, afterwards placing them in heat and shading them during the day. Blocking Dendrobium Devonianum, and shifting Phaius albus from baskets into pots. Sowing Mignonette in 6-in. pots for house decoration, and another crop of Negro Long-pod Bean and Maclean's Wonderful Pea; also sowing a little Chervil in boxes and in the open border. Planting a border with April-sown Cauliflowers; also Celery and Lettuces, and making another plantation of Cabbages, Savoys, and Brussels Sprouts. Pricking out Lettuces under glass protectors on a bed of manure. Removing rank laterals from Vines, and thinning late Grapes. Placing Tomatoes out-of-doors to harden off ready for planting. Watering Potatoes in pits; also young Celery and Radishes. Topping the shoots of Broad Beans which are in flower. Preparing flower-beds for planting. Turning Mushroom manure in order to sweeten it and prevent it from getting too hot. Tying in shoots in Peach-house, and re-filling conservatory baskets with Tropaeolums.

May 22.—Potting-off Chrysanthemum cuttings and Gesneras. Shifting Chilies into 8-in. pots, and Salvia splendens into 10-in. ones. Blocking Dendrobium Falconeri and D. Bensoni, and re-potting Vanda insignis. Sowing Scarlet Invincible Sweet Peas for succession; Walcheren Cauliflower, Knight's Tall Marrow, and Champion of England Peas; also Syon House Cucumbers. Planting Iresine, Cerastium tomentosum, Vegetable Marrows, and Ridge Cucumbers. Putting in cuttings of several varieties of Cliveden Pansies. Watering second Vine and third Peach borders with sewage; also watering Yew trees that have been recently transplanted. Syringing Peach trees out-of-doors in order to keep off insects. Earthing-up Potatoes as fast as they appear above ground. Thinning Carrots, Turnips, and Beetroot. Clearing away Spinach that is of no more use, and manuring and digging ground for other crops. Hoeing and otherwise cleaning Onion beds. Turning manure ready for Melons. Digging land for planting Brussels Sprouts, Cabbages, and Savoys.

May 23.—Basking in Moss Dendrobium Lowi, and also Odontoglossum coronarium and O. Phalopsis. Sowing Sutton's London and Paris White Cos and Neapolitan Cabbage Lettuces, Spinach, Beet, and Radishes. Planting out Scarlet Sweet Peas that have been raised in pots and duly hardened off; also Tropaeolum canariense, Gnaphalium, Centaureas, and Zonal Pelargoniums. Thinning late Grapes; also Parsnips. Watering French Beans and Cauliflowers under glass cases and hand-lights; also Celery in trenches and newly-planted Cauliflower plants. Preparing pit for planting out Cucumbers. Staking Scarlet Runners and Peas as fast as they require support. Throwing out more Celery trenches, and making them ready for receiving the plants. Hoeing and raking shrubbery borders. Levelling land for late Peas. Tying Peach trees in late house.

May 24.—Potting double Wallflowers and Selaginellas; also Cattleya exoniensis, C. Warneri, and Dendrobium speciosum. Sowing another batch of Balsams, Iberises, Wallflowers, and Pentstemon; likewise Brompton Stocks, Alyssum, and Oxalis. Planting French Beans that have been raised in pots into cold pits and on south borders. Digging land for late Peas and putting in ridge of soil in Cucumber-house ready for planting. Manuring Celery trenches. Emptying and refilling Melon pit ready for planting, and making a ridge for Vegetable Marrows. Giving more air to Peaches and Nectarines that are ripening both night and day with a view to improve their flavour. Putting short Grass between Strawberry plants on which the fruit has set. Preparing land for sowing annuals, tying creepers in conservatory and on the verandah, and removing Balsams that are coming into bloom to conservatory.

May 25.—Shifting Celosias into 10-in. pots, and placing them in a warm pit. Potting Mimulus for the conservatory; also Ice-plants and Fuchsias, and repotting Lælia purpurea. Sowing Rudbeckias, Polyanthuses, and Myosotis; also French and Long-pod

Beans, Champion of England Peas, and another crop of summer Spinach. Planting a small bed of White Celery to come into use for kitchen purposes early, and pricking out young Celery plants in open border. Watering orchard-house. Removing Tomatoes to cold pit. Disbudding Peach trees out-of-doors, and thinning the fruit, so as to leave three to a shoot; also thinning Apricots for the first time, and nailing in all leading shoots. Examining Rose trees for maggot, and washing Orchids.

May 26.—Potting *Humeas* into large pots, and placing them out-of-doors; also *Calceolarias* and *Primulas*. Shifting young Vines into 10-in. pots, and placing them in Vinery. Sowing Invincible Scarlet Sweet Peas, Giant Emperor Stocks out-of-doors, and Intermediate Stocks in boxes placed in a warm frame; also sowing French Beans in pots for planting out, and placing them in heat. Planting a few Chilies out-of-doors in the warmest situation available for them. Transplanting Beetroot where seedlings have failed. Watering seed beds with guano water; also all kitchen garden crops that are likely to suffer from drought; likewise young Cherry trees, and afterwards mulching the roots with half-rotted manure. Tying in leading shoots of espalier fruit trees. Earthing-up Cucumbers that are growing freely.

Hardy Flowers.

ANNUALS.—These should all now be sown without delay. Many annuals are very pretty, but they often disappoint because a bad selection is sometimes made, and also because they are too frequently badly sown. In a deeply-stirred soil, enriched by some good compost, they cannot fail to do well, and be, on the whole, very satisfactory. *Acroclinium roseum*, Sweet Alyssum, *Calandrinia speciosa*, *Campanula Lorei*, blue and white; Candytufts, *Clarkia Tom Thumb*, *Collinsia bicolor*, *Dianthus chinensis*, *Gilia laciniata*, *Jacobaeas*, *Leptosiphons*, *Mignonette*, *Nemophilas*, *Portulacas*, *Sanvitalia procumbens* (double), and the dwarf *Silenes*, would make a good selection for small gardens. If growers of annuals would not only sow a little thinner, but also pull out the plants after they have grown to make room for the stronger, they would get much better plants and flowers than they now do.

ASTERS.—These should be got out into beds without delay, or, if in the mixed border, they should be put in groups of five or six plants. Those who grow Asters for exhibition not only plant them out in richly-manured beds, but put the plants in little trenches, which are mulched with manure during the summer, and by means of which liquid manure can be applied. The Aster is not a large-growing plant, and it is expected to supply good and fine blossoms, which it cannot be expected to do unless it be generously treated.

CROCUSES.—The leaves of these have grown this spring with unusual strength, but they ought not to be removed till they decay. The old-fashioned plan of tying together in a knot a few leaves is the one to be recommended on the score of tidiness. It is a mistake to allow Crocuses to dry up during the summer; they should be kept moist at the roots, and an occasional watering with manure-water is now to be recommended. Such species as *Imperati*, *speciosus*, &c., which have been flowering in pots, should now be potted off, placing five or six bulbs in a 4½-in. pot, in some good soil, and setting them out on an ash-bed in a shady place for the summer and autumn.

HOLLYHOCKS.—As the rainy weather is greatly assisting these plants to make growth, the flower-stems should be tied to strong stakes as they increase in height. The destructive disease which affects the under sides of the leaves with a kind of rust is manifesting itself in places, and, if hot, dry weather set in, will work sad havoc with them; a strong dose of Gishurst Compound has been recommended, washing the under sides of the leaves with it. Moisture at the roots inducing an exuberant growth, may assist the plants to overpower the disease to some extent.

INIAS AND SPARANIS.—These are now blooming freely in pots in a cold frame, and very beautiful they are. Quite a show of these beautiful flowers, together with others of a somewhat similar character, is presented to the London public, when Messrs. Hooper & Co., of Covent Garden Market, and others, make a point of exhibiting them at the meetings of the horticultural societies held during the time they are in flower. Well-drained pots, a light, peaty soil, and a fair amount of moisture are necessary to their success. They will grow and flower in the open air, but only under very favourable circumstances.

PANSIES.—The best-named kinds in beds will need fastening by pegging down the main branches, stirring the surface-soil, and occasionally top-dressing. The plants will need shading if flowers be required for show purposes. The bedding varieties are now getting effective; the richest blue is Blue Beard; the most effective blue *Viola*, Royal Blue.

PINKS.—As the Pink is always a free bloomer, a little disbudding later on is advisable, as the flowers will become fuller and finer. The main stems should be trained to neat sticks, and the bed stirred and top-dressed from time to time.

PRIMROSES.—It is a good plan to plant out choice Primroses both double and single during the summer. A bed should be prepared for them, having at the depth of 6 in. or 7 in. a layer of cow manure to make a cool bottom, and in 4 in. or 5 in. of a good, light soil. The plants should be turned out of pots and planted with unbroken balls, pressing the soil firmly about them, and planting somewhat deeply. They make strong plants during the summer, and can be divided when repotted in the autumn.—D.

VEGETATION OF THE PARAMOS OF NEW GRANADA.

WITH all the wealth of our gardens there are many curious types of vegetation still quite unrepresented, or only met with

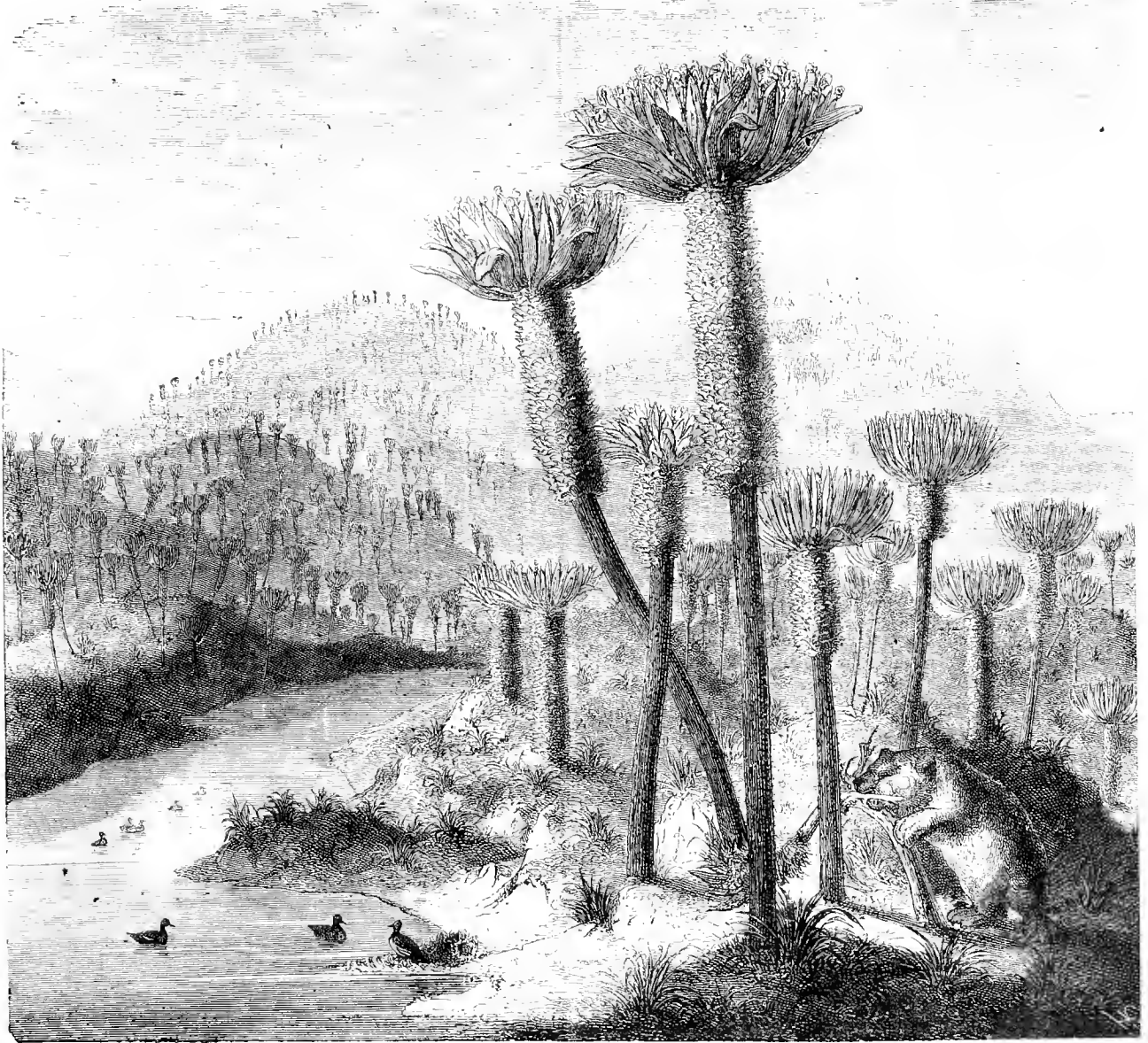


Flower and Leaf of *Espeletia corymbosa*.

in botanical gardens. It is true that the majority of these forms of plant life are more curious than beautiful, but to the naturalist they often afford more pleasure and information than the more showy members of the vegetable kingdom. Usually they are characteristic of particular regions, and, in some instances, of very limited areas. Our indigenous flora even affords plenty of illustrations of the peculiarity of certain plants to certain soils and situations, though not one well-marked species is confined in its area of distribution to the British Islands; moreover, they stand out as distinctly in their several habitats as the characteristic types of the different regions of other countries. Take, for instance, *Glaucium luteum* on the sea-shore; *Narthecium ossifragum* in boggy ground; the several species of *Ophrys* in chalk or limestone; and the Alder and Willows of river banks and wet places, and the Birch of elevated, dry places. Turning to the New World, to the Andes of New Granada, we find at an elevation of 12,000 ft. to 14,000 ft., the strange type shown in the accompanying illustration associated with species of such British genera as *Cerastium*, *Erodium*, *Hypericum*, *Gentiana*, *Cardamine*, *Pinguicula*, *Poa*, *Festuca*, *Carex*, &c., besides a host of others peculiar to the region. It is in the open, almost treeless plains and hill-sides, called Paramos, that they abound. Paramo, it should be observed, is a Spanish word, signifying a cold, exposed country of a desert character, though probably not desert in the extreme sense of the word. The plant, which forms the most striking object in the scenery, is a member of the *Compositæ*, belonging to

the genus *Espeletia*, which is closely allied to the more familiar *Polymnia*. The entire genus comprises about a dozen known species, varying from dwarf tufted plants to tall, single-stemmed herbaceous plants like *E. corymbosa*, or shrubby or even arborescent in one species. *E. corymbosa* and some of the others have the epidermis of the leaves clothed with a dense, felt-like mass of soft hairs, similar to those of *Hermas gigantea*, an umbelliferous South African plant, and *Andromachia igniaria*, another member of the Compositæ, growing in Peru; specimens of both of which may be seen in the museum at

panicles from the centre of the tuft of leaves. A dwarfier species, *E. argentea*, is figured in the "Botanical Magazine," plate 4480. This was collected and introduced by the botanical collector Purdie, in the Paramo of Siejo, New Granada; and was in cultivation both at Kew and at Syon House in 1848. The woolly covering of the leaves of this is of a silvery-white, in others it is in various shades of yellow-brown, and the flower-heads yellow, with a purplish centre. In other respects it is a relatively miniature species. One remarkable property of the species of *Espeletia* is that they abound in an aromatic,



Espeletia corymbosa in New Granada.

Kew. In both countries this felt-like epidermis is used as tinder. *E. corymbosa* and *E. grandiflora* grow to a height of 8 ft. or 10 ft., with a trunk several inches in diameter. The lower part of the trunk as the plant grows becomes naked, as shown in the illustration, and bears at the top a dense tuft of leaves, often matted together with the hair of the epidermis. The thicker part of the trunk immediately below the leaves is clothed with the bases of fallen leaves. The yellow and purple flower-heads are small, in the largest less than 2 in. in diameter, and borne in the caulescent species in small, slightly-branched

fragrant resin, which is used as incense, and also by the printers of Santa Fe de Bogota in the composition of their ink. It is stated that the Spaniards call some of the species of *Espeletia* and *Calceitium*, Frailejon or Frailejon. What the meaning of the word is I cannot say, as I find nothing approaching it in my Spanish dictionary. W. B. H.

Aquatic Plants in Regent's Park.—The Blue Water Lily is now flowering freely in a tank in the Botanic Gardens, and associated with it are plants of *Limncharis Humboldtii*, bearing numbers of bright orange Poppy-like blossoms.—S.

THE HONEYSUCKLES OR LONICERAS.

By GEORGE GORDON, A.L.S., Author of "The Pinetum."

ALL the upright-growing hardy species of these are well adapted for shrubberies; they succeed in any common garden soil, and most of them also offer an easy opportunity of improvement by intermixing the fragrant and more vigorous growing kinds with the yellow and scarlet flowering Caprifoliiums. Of the latter a full account was given at p. 87 of the current volume.

Section I.—The Xylosteums, or Fly Honeysuckles.

Short axillary funnel or campanulate flowers—two-bracted at the apex, with the calyx generally deciduous; the fruit distinct, not crowned, in pairs, more or less three-celled in the young state, and when ripe either scarlet, bright red, or black. The leaves mostly hairy, thin in texture, and soft.

Common Honeysuckle (*Lonicera Xylosteum*).—This is a robust, deciduous shrub, 8 ft. or 10 ft. high, of little beauty, but well suited for forming thickets and screens in gardens. Its leaves, which are ovate, are set on longish foot-stalks, and are densely hairy. The flower-stalks, appear in July, are small, cream-colour, when young, but much deeper-coloured before they fall; they are produced in axillary pairs, with hairy bracts which are much shorter than the leaves, and quite downy; the berries are oval, distinct, scarlet in the common form, one-celled and six-seeded. This species is found throughout nearly the whole of Europe, in thickets, hedges, and rocky places. It is also said to be a native of Britain in similar situations. It is the *Xylosteum dumetorum* of ancient writers and the *X. vulgare* of Loddiges. There are three varieties of it, which differ from each other in the colour of the flowers and berries; one (*L. leucocarpa*) has whitish fruit, another (*L. xanthocarpa*) has yellow berries, and the other (*L. melanocarpa*) has black fruit; the wood is hard, and the young shoots have a greyish-white colour.

Various-leaved Honeysuckle (*L. diversifolia*).—This is a robust, deciduous shrub, 5 ft. or 6 ft. high, with villous branches. The leaves, which are ovate, are rounded or sub-cordate at the base, downy, and set on short, smooth footstalks, bracts ciliated with long hairs; the flowers, which appear in July, are axillary, shorter than the footstalks, in pairs, pale yellow, and resemble those of the common Fly Honeysuckle both in size and shape; berries rather large, globular and black. It is a native of Nepal and Kamaoa, where it is found in thickets. The *Lonicera Roylei* of the Nepal Mountains, is a variety of this, with oval leaves and longer footstalks.

Privet-leaved Honeysuckle (*L. ligustrina*).—This is a slender shrub, covered with ash-grey, shining, smooth bark, with the young shoots villous; the leaves are ovate-lanceolate, dark green above, pale beneath, shining and ciliated, they are obtuse at the base, acute at the apex, with villous footstalks; the flowers are axillary, on very short footstalks, they are yellowish-white and funnel-shaped, tube gibbose, pubescent at the base and villous within, bracts two at the apex of each footstalk; berries distinct, three-celled, with three seeds in each cell and covered by a common membrane. It is a native of Nepal in mountain woods; flowers in July.

[Synonyms—*Xylosteum Nintoo* and *Lonicera ligustrina* of Professor Don, in his "Flora of Nepal."]

Himalayan Honeysuckle (*L. acuminata*).—This kind has villous branches and leaves varying from ovate to oblong, cordate at the base, slightly hairy, membranous, and from 3 in. to 5 in. long; the flower-stalks are axillary, longer than the petioles, villous and two-flowered; the bracts are linear, acuminate, and ciliated; the corolla is funnel-shaped, yellow, tinged with pale purple, slightly hairy on the outside, and like those of the common Fly Honeysuckle; the berries are globose and black. It is a native of the Himalaya Mountains; flowers in July.

Georgian Honeysuckle (*L. Iberica*).—This forms a very neat, low-spreading shrub, and is well adapted for garden hedges; it grows 3 ft. or 4 ft. high, with cordate, roundish, tomentose leaves; the flowers are axillary, in pairs, and shorter than the leaves; the bracts are oblong and ciliated; the corolla is of a dull yellowish-green colour, and like those of the Alpine Honeysuckle in size and shape; the berries are joined together, globose, and blood-red in colour. It is a native of Georgia about Tiflis; flowers in April and May.

[Synonym—*Xylosteum Ibericum*.]

Downy-leaved Honeysuckle (*X. canescens*, Loddiges).—This neat but not showy kind has twining branches, and forms a deciduous shrub 4 ft. or 5 ft. high; the leaves and stems are canescent from down, ovate, cordate, bluish, and petiolate; the peduncles are two-flowered and longer than the flower-stalks; the bracts and lobes of

the calyx are oblong; the flowers are two-lipped, attenuated at the base, pale yellow, and velvety on the outside; the berries are nearly distinct, globular and black. It is a native of Mogador, Mauritania, Sicily, and Palermo, growing in hedges; flowers in June and July.

Ciliated-leaved Honeysuckle (*L. ciliata*).—This kind forms an erect, deciduous shrub, from 4 ft. to 6 ft. high, with ovate or oblong, cordate, thin ciliated leaves, villous beneath in the young state; the peduncles are elongated, axillary, with two flowers on each, which are very much shorter than the young fruit, and distinct; the flowers are bluntly spurred at the base, with short, acute, nearly equal segments; they are white with a tinge of red or yellow, and with the tube ventricose above; the berries are distinct and of a red colour. It is a native of North America on mountains and among rocks in rich soil, from Canada to Virginia; flowers in July.

[Synonyms—*Xylosteum canadense* (Loddiges); *Xylosteum ciliatum* (Pursh).]

Section II.—Chamaecerasi, or False Cherry-fruited Honeysuckles.

These form erect, bushy shrubs, with berries usually connate or joined at the base, and short, axillary, funnel-shaped flowers in twos, which are mostly equal at the base, on slightly gibbose on one side.

Tartarian Honeysuckle (*L. tatarica*).—This is a robust, deciduous, erect, quite smooth shrub from 6 ft. to 8 ft. high; the leaves are rather large, cordate, ovate, and hardly pointed; the peduncles are axillary and shorter than the leaves; the flowers are rose-coloured, short, in pairs, and somewhat gibbose at the base; bracts linear and bristly; the berries are distinct and nearly globose when young, but joined at the base when fully matured, and bright red in the common form when ripe. It is a native of Tartary and Siberia, and flowers in April and May; it is apt to get its young growth cut by the spring frosts, as the plant commences growing very early in the season. There are the following varieties of this species; one with white flowers (*albiflora*), another with beautiful crimson flowers (*rubriflora* or *panicea*), and a third with yellow berries (*lutea*). *L. panicea* is reproduced true from seed, and is considered by most writers as a distinct species.

Hispid Honeysuckle (*L. hispida*).—This is a small, upright, deciduous shrub, 2 ft. or 3 ft. high, with opposite, brownish, hispid branches; the leaves are ovate, ciliated, and from 1½ in. to 2 in. long, and 1 in. broad, very smooth on both sides and cordate at the base; peduncles two-flowered, with ovate-elliptic bracts; the flowers are greenish-white and pendulous; the berries are distinct and purple. It is a native of Siberia on the Altaian Mountains; flowers in May and June.

[Synonym—*Xylosteum altaicum* of Loddiges, and easily distinguished by its brownish bristly shoots and glabrous leaves.]

Blue-berried Honeysuckle (*L. coralea*).—This is an erect, low, deciduous shrub, 3 ft. or 4 ft. high, with the bark of the young shoots of a purple colour; the leaves are oval-oblong, ciliated, stiffish, and clothed with pubescence when young; the peduncles are short and two-flowered; the bracts are in twos and awl-shaped; the tube of the corolla is generally yellow, short, smooth on one side at the base, with the lobes short and nearly equal; the berries are elliptic or globose, dark blue and close joined in one. It is a native of the woods of British North America, in Labrador, Newfoundland, Hudson's Bay, and the State of New York, and flowers in March and April; it is also found in Siberia, France and Austria, and there is no perceptible difference between the American and European plants.

[Synonyms—*Xylosteum villosum* and *Lonicera villosa* (Michaux); *Lonicera velutina* (De Candolle); *Lonicera canadensis* and *altaica* (Pallas); *Lonicera Pallasii* (Professor Ledebour).]

Small-leaved Honeysuckle (*L. microphylla*).—This form resembles the *L. Alpigena*, and is sometimes called *L. montana*. It is a small, erect, deciduous shrub, 3 ft. or 4 ft. high; the leaves are small, elliptic, acute at both ends, rather villous on both surfaces, sometimes rounded at the base and glaucous beneath; the peduncles are two-flowered and shorter than the leaves; the flowers are greenish-yellow; the berries joined, and of a reddish orange colour. It is a native of Eastern Siberia; flowers in April and May.

Webb's Honeysuckle (*L. Webbiana*).—This forms a deciduous, erect shrub, 3 ft. or 4 ft. high, the leaves of which are ovate-oblong, acuminate, obtuse at the base, on very short footstalks, pilose along the nerves, and ciliated on the margins; the peduncles are two-flowered and three times shorter than the leaves; berries half united and black. This is a native of Sirinagur in the East Indies; flowers in April and May. It resembles the *Lonicera Alpigena*, but differs in the leaves being pilose and ciliated.

Dr. Govan's Honeysuckle (*L. Govaniana*).—This is a dwarf, erect shrub, from 3 ft. to 5 ft. high, the leaves of which are elliptic or lanceolate, acute at both ends, membranous, and glabrous; the stalks are two-flowered, three times longer than the footstalks of the leaves, but shorter than the leaves; bracts linear, with the flowers gibbous at the base, and smaller and shorter than those of the *Lonicera Alpigena*, which the plant greatly resembles; berries joined and black. This kind is a native of the East Indies at Sirmour; flowers in April and May.

Black-berried Honeysuckle (*L. nigra*).—This is an erect, dwarf, deciduous shrub, 3 ft. or 4 ft. high, with oval-oblong or elliptic leaves; peduncles two-flowered, elongated, and shorter than the leaves; the flowers are reddish and pubescent on the outside, but whitish on the inside; the outer bracts are lanceolate, the inner ones quadrifid; the berries are black, globose, and joined together at the base. It is a native of the middle of Europe in subalpine woods, particularly in France and Austria; flowers from March to May. The *Xylosteum campaniflorum* of Loddiges is only a variety of this, with bell-shaped flowers.

Alpine Honeysuckle (*Lonicera Alpigena*).—This kind forms a large, robust, deciduous shrub, from 5 ft. to 8 ft. high, with a whitish aspect, and sometimes called the Cherry Woodbine; the leaves are rather large, oval-lanceolate or elliptic, acute, glabrous or pubescent; on very short petioles, rather ciliated; peduncles two-flowered, and shorter than the leaves; the flowers are gibbous at the base; greenish-yellow, tinged with red or purple; the berries are red, of the appearance and size of unripe wild Cherries. It is a native of the middle and South of Europe in subalpine places; flowers in April and May.

[Synonym—*Xylosteum Alpigenum* (Loddiges), of which *Xylosteum sibiricum* is only a variety which comes into leaf and flowers a week earlier than the species.]

Two-coloured Honeysuckle (*L. discolor*).—A deciduous, free-growing shrub, from 4 ft. to 6 ft. high; the leaves are oblong, acute, smooth, from 2½ in. to 3 in. long and about 1 in. broad; they are rather distant, bright green above, glaucous-white beneath, tapering to the base, and on rather short stalks; the flowers are axillary and are produced in pairs at the joints of the shoots, on long footstalks, pale yellow, or nearly white, tinged at the base with pink; the berries are produced singly on long fruitstalks, quite smooth and black, and as large as those of the wild Cherry. This is a very distinct species, which is very attractive in October, when its large, black berries are ripe. It is native of the northern parts of India; flowers in June.

Oblong-leaved Honeysuckle (*L. oblongifolia*).—This is a low, deciduous, erect shrub, and shows well in the front of a flower border; it grows 3 or 4 ft. high, with oblong or oval leaves, clothed with a velvety pubescence beneath; the peduncles are elongated and erect; bracts hardly perceptible; the tubes of the flowers are hairy, gibbous at the base on one side, unequally and deeply lipped, the upper one four-toothed and the lower one nearly entire, and of a yellow colour; the berries are joined in one, bluish-black, and the size of a Pea. It is a native of North America, in the Island of Montreal, the St. Lawrence, Lake Winnipeg, and the western parts of New York; flowers in April and May.

Pyrenean Honeysuckle (*L. pyrenaica*).—An erect, deciduous shrub, 4 ft. or 5 ft. high, with obovate-lanceolate, acute leaves, glaucous beneath; the peduncles are two-flowered and shorter than the leaves; bracts oblong-linear and leafy; the flowers are nearly regular, funnel-shaped, with flat, fine cleft, equal obtuse segments nearly double the size of those of the Fly Honeysuckle, and of a white colour; the berries are globular, distinct, and white. It is a native of the Pyrenees on calcareous rocks in exposed situations; flowers in May.

Involucrated Honeysuckle (*L. involucrata*).—This is a low, erect, deciduous, shrub 2 ft. or 3 ft. high, with acutely, four-sided branchlets; the leaves are large, ovate or oval, petiolate, membranous, and beset with adpressed hairs beneath, and smooth and shining above; the peduncles are axillary and two or three-flowered, the two outer bracts ovate and the two inner ones broad, obovate and clothed with granular pubescence; the flowers are curved, pubescent, gibbous at the base on the outside, and yellow, tinged with red. It is a native of North-west America, and the Rocky Mountains; flowers in May.

[Synonyms—*Xylosteum involucratum* (Dr. Franklin's Journal); *X. Solouis* (Loddiges).]

Dr. Ledebour's Honeysuckle (*L. Ledebourii*).—Robust, spreading, low-branched, deciduous, 2 ft. or 3 ft. high, with

elongated, acutely, four-sided branchlets; the leaves are oval or oblong, somewhat pointed, stiff, pubescent, and tomentose beneath, smooth above, and produced early in the season; peduncles axillary and two or three-flowered, the two outer bracts ovate and the two inner broad, obovate, and pubescent; the flowers are gibbous at the base on the outside, pale yellow, tinged with red and curved; the berries are distinct and dark purple. It is a native of California; flowers in May and June. This kind very much resembles *L. involucrata*, but is a more spreading and freer-growing plant; it has also smaller and yellower flowers.

Oriental Honeysuckle (*L. orientalis*).—The Iberian Cherry-fruited Honeysuckle forms a deciduous, erect shrub, from 3 ft. to 5 ft. high, with ovate-lanceolate, acute, quite entire, and smoothish leaves; they are on very short stalks, stiffish, and larger than those of the blue-fruited one; the peduncles are two-flowered and shorter than the leaves; the two bracts bristly; the flowers greenish-yellow; the berries are joined in one, black or dark blue. It is a native of Iberia and Asia Minor; flowers in April and May.

[Synonym—*Lonicera caucasica* (Pallas in his "Flora Russica"), and frequently confounded with *Lonicera coerulea*, but the leaves are much larger, and the plant is more robust.]

Narrow-leaved Honeysuckle (*L. angustifolia*).—A deciduous, erect shrub, with numerous slender, smooth branchlets, and 3 ft. or 4 ft. high; the leaves are oblong-lanceolate, acuminate, pale and glaucous beneath; peduncles two-flowered, and a little shorter than the leaves; bracts linear, and twice the length of the ovary; berries joined together completely; corolla nearly equal, and pubescent on the outside. It is a native of Nepal and Kanton; flowers in June and July.

Lance-leaved Honeysuckle (*L. lanceolata*).—This desirable and hardy shrub for the flower garden is a spreading, deciduous bush, from 4 ft. to 5 ft. high, with slender pubescent shoots, and the stem furnished with fibrous epidermis. The leaves are lanceolate, hairy and acute at the base; they are pubescent above, shining, hairy and glaucous beneath; the peduncles are axillary, short, but longer than the footstalks of the leaves, and like them villous; it has two linear and four-ovate bracts, the latter rounded and shorter than the others; the berries are distinct, smooth, and the size and colour of Black Currants. Native of Nepal; flowers in June and July.

Standish's Honeysuckle (*L. Standishi*).—This is a deciduous, somewhat erect bush, from 4 ft. to 5 ft. high, with light brown warty branches; the leaves are oval, tapering to both ends, on very short footstalks, feathery nerved beneath, from 2 in. to 2½ in. long, and 1 in. broad, hairy when young, smooth on the upper surface when fully matured, and thinly furnished beneath and on mid-rib with longish hairs, coarsely ciliated on the margins, and of a dull green colour on both surfaces; the flowers are white, rather small, in axillary pairs, and produced in January and February, just before the young leaves begin to appear. The berries are nearly stalkless, in pairs, united at the base, bluish, and on hairy footstalks; they are about the size of a Pea, and enclosed by two long, narrow bracts. It is a native of the North of China, and as it has never been described in any botanical work, has been grown in gardens under the names of *Fortunei* and *præcox*, and sometimes as *longifolia*.

Section III.—*Caprifolium-like Honeysuckle.*

This kind has the robust climbing habit of the Woodbine, and the short, axillary flowers of the Honeysuckle.

Very Fragrant Honeysuckle (*Lonicera fragrantissima*).—This very distinct species forms a robust, sub-evergreen climbing plant, with long brownish leading shoots, and the aspect of a *Caprifolium* in growth. The leaves are broadly-oval, a little pointed, rounded at the base, of a deep shining green on the upper surface, pale or slightly glaucous beneath, quite smooth on both surfaces, with the old leaves retained more or less on the plant all the winter, and the young growth very early, from which the flowers arise; the flowers are white, slightly tinged with pink towards the base, remarkably fragrant, and produced in the axils of the leaves in pairs, on long footstalks, enclosed at the base by two long, narrow bracts; the berries are united at the base, quite smooth, and about the size of a Pea. This is a very desirable plant, on account of its delicious fragrance, which, like the Chinese Allspice (*Chimonanthus fragrans*), produces its flowers during the winter and spring months, when trained against a south wall. The *Lonicera fragrantissima* flowers more abundantly when the ends of the leading shoots are shortened during the summer, so as to cause the plant to make lateral shoots. It is a native of the north of China; flowers from January to March. Fortune found it scrambling among thickets like the common Woodbine.

CALIFORNIAN MANNA.

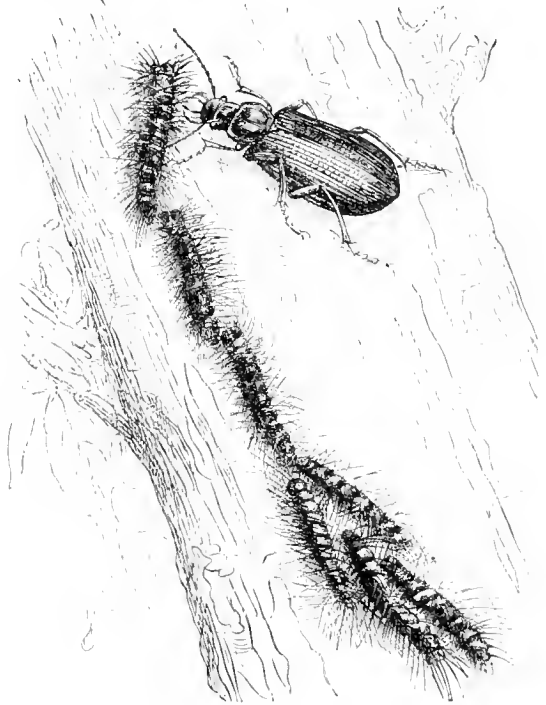
The "Druggists' Circular" has received from a Californian correspondent some cuttings of Cedar and Pine, covered with saccharine matter which old Californians call "honey-dew," and which is only found in quantities in extremely dry seasons, when the trees are said to be literally covered with it. The specimens were submitted to Prof. Thurber, who furnished the following notes respecting them: "They consist of terminal twigs of two Conifers: a Pine of the section with ternate leaves (three in a cluster or sheath), but which cannot be accurately identified without the cone; and the Californian White Cedar (*Libocedrus decurrens*). Specimens of both are freely incrustated in a stalactitic manner with a nearly pure white substance. A friend who stood by as I opened the box at once declared them to be fragments of a Christmas tree. The taste recalls that of Manna, and if a fragment he carefully separated that is not in direct contact with the stem or leaf, it is free from any terebinthinate flavour. It is one of the numerous saccharine exudations classed under the head of Manna, to indicate a common method of production, rather than identity of chemical characters. "While the Manna of commerce is furnished by a species of Ash (*Fraxinus Ornus*), similar exudations, more or less valued in the countries where they occur, are produced by trees of widely different families. The Leguminosæ and Rosacæ contain Manna-bearing plants; a Tamarisk, a Cistus, a Willow, and one or more Oaks, afford similar products; even the genus *Eucalyptus*, of which so much is now expected, has a Manna-yielding species; with all these very dissimilar plants producing sugary exudations, it is not surprising that we should find them in a family where they would be least expected, judging from its ordinary 'naval store' products—the Coniferae or Pine family. "Manna from Conifers is, however, no recent thing. The Briançon Manna, employed in France early in the last century, is from a Conifer, the European Larch (*Larix europæa*), and received its name from being collected in the mountains about Briançon, where it is still gathered by the peasants for their own use, though no longer in commerce. It is found in mid-summer adhering to the leaves of the Larch, and is collected early in the day, as it disappears with the heat of the sun. Old writers mention the Manna of Lebanon, which some say was afforded by the Cedar of Lebanon (*Cedrus Libani*), but others assert that it was only a synonym for gum mastic. "One of the finest Pines of that country of magnificent trees, our Pacific coast, is known to cultivators as Lambert's Pine (*Pinus Lambertiana*); this reaches the height of 200 ft. and even 300 ft., and is useful as well as grand, its wood serving there for all the purposes that the White Pine does with us. Ordinarily this tree exudes only turpentine, and but little of that; but when the tree is injured by being partially burned, it yields a saccharine substance, formerly used by the settlers for sweetening their food, on which account the tree is known all along the coast as the "Sugar Pine." The Pine, however, among the specimens in question, is not the Sugar Pine (*P. Lambertiana*), as that species belongs to the section having five leaves in a sheath, and shows that there are at least two species of our far Western Pines which produce a Manna. The observation as to its production by *Libocedrus* is, so far as I am aware, quite new, and adds one more to the Manna-yielding genera. As to the cause of this exudation, so long as the phenomenon in the Manna Ash, where there has been abundant opportunity for study and observation, remains unexplained, it is hardly worth while to conjecture in the present case, in which we have only the results. Manna is exuded from this Ash spontaneously, the tree being wounded merely to increase the product. It only occurs in warm and dry countries, and is greatly affected by the character of the season. We have in the specimens, and also in the sugar produced by the Sugar Pine, not only an exudation, but one very unlike that usually yielded by the tree. The ordinary exudation from these trees, in common with others of the Pine family, is turpentine, an oleo-resin. In these cases the character of the exudation is entirely changed, and we have a form of sugar, belonging to an entirely different class of principles. In the Sugar Pine this appears to be effected by destroying the vitality of the tree by partial burning; in the specimens before us it is ascribed to extreme drought."

Gardening as an Industry.—It is strange that fruit and vegetable gardening should not receive among us that attention as an industry which it deserves. We pay £6,000,000 sterling every year for imported fruits alone. France, Jersey, Holland, Spain, and Portugal send us Grapes, Melons, and Figs; we receive enormous quantities of Apples from France and America, and Pears from France and the Channel Islands. So satisfactory to fruit growers are the prices now realised in our markets, that news reaches us from the Continent of fruit culture being rapidly extended in many districts. For some kinds of fruit our growers have but a poor chance in com-

peting with their Continental rivals, but for others the British grower has many advantages, and might develop a very profitable industry. We import, for example, Apples and other hardy fruits at a yearly cost of nearly £2,000,000, and all the time we have thousands of acres of cultivated land devoted to a far less remunerative purpose—timber growing—besides thousands of acres lying waste. As it is, the demand for fruit and vegetables exceeds the supply, and this demand, it is worth observing, arises in a great measure from a growing taste for these articles of food among the more intelligent of our labouring population, who, after all, influence the sale of food commodities far more than the wealthier classes.—F. W. B.

BOMBYX PROCESSIONEA.

THE accompanying woodcut represents the larvæ of a species of *Bombyx* which is very common and does much mischief in woods and pleasure grounds on the Continent, but which happily has not yet found its way into Britain. Those of us, however, who take an occasional run to the Continent (and



Larvæ of *Bombyx processionea* and Beetle which feeds on them.

who now-a-days does not?) must have observed it if their occasions have at all carried them into the woods and plantations abroad. It is called *Bombyx processionea* from its caterpillars being found in flocks, and under certain circumstances walking, as it were, in procession. The eggs are laid at the end of August in little heaps on the bark of the Oak tree, and are not hatched until the following May. The larvæ on coming out form a family of 700 and 800, which keep all together until they become moths. They spin a net in which they live, but in their younger state the net is slight, and they often leave it and spin another elsewhere; at each change of skin, too, they desert their nest to make another. When they have changed for the last time they make a much larger dwelling-place, which is usually $1\frac{1}{2}$ ft. in length by $\frac{1}{2}$ ft. broad, of no particular form, but rounded at both ends, and attached vertically to the trunk of the tree, often quite close to the ground, at other times 6 ft. or 7 ft. up. These nests look like excrescences or nodosities on the part of the bark where they are formed, and at the top of this silken bag there is an opening by which the caterpillars pass out and in as they like. When these caterpillars quit their lodging to go and establish themselves elsewhere, their march is conducted in regular order. When they set out one caterpillar goes first and heads the column, the rest follow in files like a string. The first is always single, the

rest are sometimes two or three in a line, and they keep their line so exactly that the head of one never passes that of its neighbour. When the leader stops, the rest stop too, and wait until it resumes its march. This is the order in which they are most frequently seen in procession crossing the alleys of woods, or passing from one tree to another, which they do whenever they find the tree on which they are situated insufficient for their sustenance. It is towards sunset that the caterpillars usually perform their promenades, and it is only during the night that they devour the leaves. They may sometimes, however, be found in full day basking in detachments or little clusters on the bark of the trees not far from their habitations; they are, however, so like the bark in colour and appearance that they may be easily overlooked. When the time for passing into the chrysalis arrives, they each spin a separate cocoon inside the general nest, in which they may undergo their metamorphosis, and if, as sometimes happens, the general nest is insufficient to contain the whole of the cocoons, they spin an addition to the house, or make a new one, alongside the first. The nests, especially the old broken ones from which the moths have emerged, should not be touched with the naked hands, for the hairs and broken remains of the insects produce frightful itching, and sometimes severe inflammation of the hands and face, or any other part where the skin has been exposed to them. Baths and acidulated lotions, however, soon cause these unpleasant symptoms to disappear. As in other insects, the number of these processional caterpillars varies in different years. Sometimes they have occurred in great numbers, so much so that even in the Bois de Boulogne certain parts of the wood have had to be closed to the public on this account. The plan adopted for getting rid of this insect is to rake off the nests from the trees and burn them. It should be done in the month of July, and in wet weather, when the larvæ are all at home sheltering from the rain. The moth is small for a Bombyx, of a greyish-white colour, with dark brownish bands across the upper wings. The insect is found over almost the whole of Europe.

The beetle figured alongside the larvæ is the *Calosoma sycophanta*, which makes great havoc among them, and has a special liking for feeding on them. A. M.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE FLOWER SHOW.

MAY 12.

This exhibition was on the whole a very successful one; the chief attraction was the Roses in pots, but Orchids were also fairly well represented. The practice, however, of making up specimens for purposes of exhibition by crowding numbers of small plants closely together in one large pot or pan is much to be deprecated; evidences of it were but too apparent on this occasion. New plants were sparingly exhibited, and in nearly every case those which received certificates had been similarly distinguished on previous occasions.

Stove and Greenhouse Plants—These were, taken altogether, well represented, but there is a sameness about such exhibitions nowadays that considerably diminishes their interest. Messrs. Jackson & Sons, Kingston, had the best group of twelve plants to which, however, a second prize only was awarded. In this group the most distinct plants were *Rhododendrons* Princess Alice, having large fragrant white blossoms; *Statiea profusa*, a mass of purplish-blue flowers; *Aphelaxis macrantha purpurea*; and *Hedaroma fuchsoides*, in excellent condition; as was also the orange-flowered Cape Lily, *Imantophyllum miniatum*, bearing eighteen trusses of rich orange-yellow flowers. *Baronia pinnata*, and one or two well-grown heaths were also included in this group. In the class of nine specimens Mr. Chapman sent a well-arranged group, consisting of *Anthurium Scherzerianum*, a white Cape Heath, *Chorozema Chandleri* (a mass of orange flowers), together with *Pimelea mirabilis*, *Dracophyllum gracile*, a good *Ixora*, and *Erica depressa*, the latter remarkably well bloomed. Mr. B. Peed, who was second, had *Franciscea calycina*, *Imantophyllum miniatum* (bearing from twenty to thirty trusses of bloom), *Clerodendron Balfourii*, *Epacris Eclipse*, the yellow-flowered *Erica Cavendishi*, and others equally good. Mr. Tudgey also showed a well-grown collection in this class, and the same exhibitor was likewise first in the class of six plants with *Ixora Williamsi*, *Erica ventricosa* magnifica studded with clusters of carmine-tipped flowers, and a well-bloomed *Hedaroma tulipiferum* 5 ft. through: Mr. Chapman was second. Mr. Bristow, who exhibited a group in the same class, had one of the best-flowered little plants of *Vanda suavis* we ever saw, a fresh and healthy single break, 2 ft. in height, bearing three stout spikes, two of which bore twelve or thirteen fully-expanded flowers respectively. Heaths

were represented by a well-grown group from Messrs. Jackson, in which *Erica Cavendishi*, *ampullacea*, *oblata*, *depressa*, &c., were conspicuous. Other sorts were *E. coccinea minor*, 2 ft. 6 in. in diameter, and nicely bloomed; *elegans*, 4 ft. through; and others of similar proportions. With the exception of the Roses, the most brilliant and attractive plants in the exhibition were the Azaleas, the principal exhibitors of which were Mr. A. Ratty and Mr. Charles Turner. Messrs. Rollisson & Sons also showed good plants. Mr. Ratty had well bloomed plants of *Model Rose*, *Georgiana*, *scarlet*; *Eulalie Van Geert*, white and rose; *Mrs. Fry*, *carmine*; and *Criterion*. Mr. James Child had *Iveryana*, white, 5 ft. in height; *Reine des Belges*, semi-double rose; *Barclayana*, white; *Rosea elegans*, *vermilion*; *arboorea purpurea*, purple; and *Duchess Adelaide de Nassau*, *vermilion* flushed with purple. In the class of twenty plants Mr. Turner was first with a remarkably even and well-flowered collection, consisting of plants about 2 ft. in height, which are far more useful and attractive than more unwieldy specimens. Among these we noted *Duc de Nassau*, *carmine*; *Mrs. Turner*, *salmon-rose*; *Verschaffelti*, *vermilion*; *Souvenir de Prince Albert*, semi-double rose edged with white; *Neptune*, *scarlet*; and others. Mr. A. Ratty, who was second with equally well-bloomed but more irregular plants, had good examples of *Flag of Truce*, double white; *La Superbe*, *scarlet*; *Bernhard André*, a semi-double rosy variety; and others. Mr. C. Turner was awarded an extra prize for nine well-grown specimens, among which we noted *Cedo Nulli*, purple; *Reine des Fleurs*, *salmon-rose* and white; *Comtesse de Flandres*, *crisped rosy-lilac*; and *Madame Verschaffelt*, *salmon* with white-edged *crisped petals*—one of the most distinct.

Fine-foliaged Plants—The best *Crotons* came from Mr. John Wills, who had pretty little specimens of *C. undulatum*, *C. multicolor*, *C. Youngi*, *C. ovalifolium*, and others. Mr. Ley, Croydon, had, however, better-coloured plants, but they were somewhat irregular in size and quality; among these the most distinct were *C. undulatum*, *C. trilobum*, and its small, golden-margined form named *hastilobum*, together with a small plant of the bright golden-netted *C. Wiesmanni*, and others. Amongst the Palms, which were well represented, Mr. Ley had the best group, in which there was a unique specimen of the graceful fan-leaved *Chamærops tomentosa*, the slender, radiating segments of the leaves being covered below with silvery tomentum. *Geonoma Schottiana*, an elegant pinnate-leaved species, was also in this collection, as were likewise *Euterpe edulis*, and a splendid young plant of the stately, fan-leaved *Pritchardia pacifica*. Mr. Legg's group, which was a good one, included the formidably-armed *Dæmonorops peracanthus* and the graceful *D. palmbanicus*, together with one of the best plants which we have yet seen of the fresh green, glossy-leaved *Martinezia granatensis*, in addition to *Cocos Weddelliana* and a plant of the broad, fan-like *Verschaffeltia splendida*. In a miscellaneous group contributed by Mr. Ley, we noted several plants of a most distinct Palm named *Chamedora elegantissima*, the slender, wand-like petioles of which attain a height of from 8 ft. to 10 ft., arching gracefully, the slender grassy pinnæ hanging from the upper side in the most pleasing manner; indeed, this Palm is so distinct in habit that it well deserves a place in the most select collection of fine-leaved plants. The best collection of Ferns was shown by Mr. B. S. Williams, who had several good plants of *Gleichenias*, including *G. dicarpa*, 3 ft. in diameter; *G. Spelunca*, rather larger; and *G. rupestris*, together with good examples of *Adiantum Farleyense*, *Asplenium Nidus Avis*, *Cibotium Scheidei*; and the stately black-striped *Cyathea medullaris*, with an ample coronal of feathery fronds. Mr. E. Tudgey sent a beautiful plant of *Onychium japonicum*, 4 ft. through, the fronds being of a rich, dark glossy green tint, like that of some *Trichomanes*. This is one of the most elegant and distinct of all decorative Ferns, and one but too rarely met with in gardens. Other plants in this group were *Adiantum Farleyense*; *Gleichenia Mendeli*, 3 ft. in diameter; *G. flabellata*, and an example of *Gymnogramma decomposita*. Mr. Peed and others had also good collections. Mr. T. N. Penfold, gardener to Rev. Canon Bridges, Beddington House, Beddington, furnished twelve well-grown Ferns in this class, including a pretty little plant of *Dicksonia squarrosa*, *Platynerium grande*, *Todea superba*, and *Trichomanes radicans concinna*. In the class of twelve fine-leaved plants, Mr. Legg had an excellent selection, consisting of remarkable examples of *Dasyliroton acrotichum*, *Croton Johannis*; *Davallia Mooreana*, a fresh, feathery mass of light green fronds, 7 ft. in diameter; *Alcacia Lewi*, with great bronzy shield-shaped leaves; a superb plant of the gold-veined *Croton Wiesmanni*, 7 ft. in height; and good examples of *C. angustifolium*, still, when well grown, one of the finest of all *Crotons*. Mr. Tudgey had also a good group, in which *Pritchardia pacifica*, *Dasyliroton acrotichum*, and a splendid plant of *Cordylone indivisa* were the most noteworthy. Mr. Ley's group was a good one, but owing to its distance from others, it appeared to have escaped the attention which it deserved. Among other plants in it we noted *Yucca filamentosa variegata*, *Cocos Weddelliana*, *Phœnicophorium Seychellarum*, *Cycas revoluta*, *Yucca aloifolia variegata*, *Pandanus Veitchi*, *Marantas*, &c. Mr. Legg was first in a class of eight fine-leaved plants, Mr. Ford being second with a prettily-arranged collection, in which the plicate-leaved *Pennisetum fimbriatum*, a tall ornate Grass, and a gigantic Aroid (*Caladium nymphaefolium*), were the most noticeable, the great shield-shaped leaves of the latter being of a dark velvety green colour, and their dimensions about 4 ft. long and 3 ft. broad, each being elevated on smooth, cylindrical petioles, 4 ft. or 5 ft. in height. A plant of the velvety-leaved *Cissus discolor* was also very finely coloured. Mr. J. Wills showed an attractive group in Class I, including *Yucca filamentosa variegata*, 4 ft. in diameter; *Pritchardia Martynia*, a distinct fan-leaved Palm; the purple-leaved Bread-fruit (*Artocarpus Cannoni*); and the silvery-veined *Anthurium crystallinum*, all in excellent condition. Mr. Wills also contributed a large group of his new seedling *Dracænas*

tastefully arranged, and small Palms, margined with a line of fresh green Maiden-hair Fern. Among the kinds shown the most noticeable were D. Willsi, a dwarf, robust habitated plant, with broad, recurved, bronzy-purple leaves, margined very regularly with carmine; D. terminalis alba, one of the best white-striped sorts; D. Mrs. Wills and D. Mrs. Bausé, all exceedingly effective kinds. Mr. J. H. Ley showed a miscellaneous group of Palms, new Ferns, and other fine foliated plants in excellent condition. Messrs. F. & A. Smith, Dulwich, had also a large and well-arranged group of Palms, Ferns, stove and greenhouse plants, and florists' flowers. Messrs. J. Laing & Co., Forest Hill, sent a large and varied group of Crotons, Palms, Ferns, and Cycads, together with Caladiums, Dracenas, Marantas, and other stove plants, all effectively and tastefully arranged. Messrs. Rollisson & Sons, Tooting, showed a very interesting miscellaneous collection of Palms, Ferns, succulents, and other decorative plants, including good specimens of Echeveria azaroides, E. Peacockii, E. pulverulenta, a mealy Californian species, and one of the most distinct in the whole group. In this group we also noted a distinct and fresh green pinnate-leaved Palm, named Calamus schizospathus, having spinose petioles, and four or five broad leaflets, arranged in a sub-peltate manner at their apices. Mr. James Ford, gardener to J. G. Megaw, Esq., Windermere House, Norwood, showed a large and well-arranged group of Ferns, Orchids, Begonias, and other decorative plants in good condition. Fine-leaved plants in small pots, intended for room or dinner-table ornament, were represented by several good collections, the best being sent by Mr. Lambert, who had pretty little plants of Croton angustifolium, Pandanus Veitchii, Demonorops pulembanici, the slender-leaved Dracena gracilis, Cocos Weddelliana, and the still more elegant Geonoma gracilis. Mr. Wills, who was second, had Staudmannia scorbifolia, with bright green pinnate foliage; Croton Disraeli, well coloured; Aralia elegantissima; Dracena Percy, crimson-striped; D. Victoria, white-striped; and the graceful Chameleroia formosa. Mr. Bristow, Dulwich, had Adiantum gracillimum; Pandanus Veitchii; Croton Wismannii; Aralia quinquefolia, very distinct and excellent for table; Cocos Weddelliana; Cassurina Sumatrana, a perfect plant, but too large and dense for table work. Messrs. Rollisson & Sons had Reidia glaucescens, Dracena Guilfoylei, D. gracilis, Geonoma gracilis, Aralia Guilfoylei, and Dracena terminalis.

Orchids.—In the class of ten exotic Orchids, Mr. B. S. Williams was first with well-grown and floriferous plants, among which we noted the snowy-white *Cypripedium novium*, bearing twenty-five flowers; *Oncidium sacodes*, with three or four good spikes; a splendid variety of the *Pescotara Odontoglossum*, the most elaste species in the whole genus, bearing two branched spikes, on which there were about fifty large flowers. Associated with these were *Sobralia macrantha* named *Woolleyi*, bearing seven flowers; *Cypripedium villosum*, with sixteen or more of its brownish glossy flowers; *Cattleya Mossie*, named *grandiflora*, bearing five delicately-tinted blossoms; a good plant of *Cypripedium barbatum* bearing twenty-six flowers, the upper part of the dorsal sepal being pure white veined with purple. A floriferous plant of the golden *Oncidium Marshallianum*, bearing five spikes, brightened up this collection, which contained moreover two plants of *Vanda tricolor*. Messrs. Jackson & Son were second with smaller plants, among which was a superb example of the true old *Odontoglossum citrosum* roseum, bearing four strong spikes, the waxy flowers being of a delicate flesh colour, and having a clear, bright, rosy lip, fully as bright in colour as the oft-mentioned figure of this variety in Warner's "Orchidaceous Plants." It also contained good plants of the *Odontoglossum Alexandræ*; a mixed pair of the Bearded *Cypripedium*, bearing the name of *C. barbatum superbum*, one or two of the varieties, however, being about the worst we ever saw exhibited; a plant of *Vanda tricolor formosa*, with four or five good spikes of richly-tinted flowers; *Saccolabium retusum*, with three well-developed spikes; a floriferous plant of *Masdevallia Lindenii*, and *Cypripedium hirsutissimum*, and *Cattleya Mossie superba*, the last a richly-tinted form, bearing twelve flowers. In the amateurs' class of eight Orchids Mr. James Child was first with excellent specimens, among which we noted the following:—*Dendrobium Farmeri*, a delicate variety, bearing three gracefully-drooping thyrse-like clusters of rosy flowers; also a good plant of *D. crystallinum* bearing four or five good spikes. Associated with these was also a good *bona fide* specimen of the true *Dendrobium barbatum superbum*, bearing twelve very large and highly-coloured flowers, and, perhaps, one of the finest examples of *Oncidium ampliatum majus* ever exhibited, a mass of enormous plump pseudo-bulbs and fresh green leathery leaves fully a yard in diameter, bearing thirteen branched spikes, each from 3 ft. to 4 ft. in height. As shown by Mr. Child this is certainly an attractive and desirable species for exhibition, and all the more creditable since even respectable examples of it are but rarely met with in even the best collections. Another good and well-grown old plant in this group was *Camarotis purpurea*, bearing twenty or thirty spikes of rosy-purple flowers. Mr. B. Peed had a well-grown group, also including a small but healthy plant of *Oncidium ampliatum majus*, bearing three good spikes; *Phalænopsis amabilis*, with twelve flowers. Here, again, we noticed a made-up pair of mixed varieties of *Cypripedium barbatum*.

Roses in Pots.—These were well represented, although perhaps not in the full glow of floral beauty as seen at the corresponding exhibition last season. Mr. Charles Turner had, however, well-bloomed specimens, varying from 5 ft. to 6 ft. in diameter, and of about the same height; Messrs. Paul & Sons showed still larger specimens, and in admirable condition, but not so perfect as regards floral beauty as usual, indeed, a sunny day or two would have improved them immensely; as it was, however, Mr. Turner obtained first prizes with examples of *Madame T. Levet*, a rosy variety; *Duke of Edinburgh*, crimson; *Charles Lawson*, rose; *La France*, one of the most beautiful and popular of all modern varieties,

having revolute petals of a soft, satin-like, rosy tint; *Maréchal Vaillant*, a crimson variety, was also in good condition, and contrasted well with the rosy-tinted *Juno*, another old favourite, and in this case superbly flowered; *Victor Verdier* is a variety one looks for as a matter of course, and in this case its bright rosy-crimson bloom is told with good effect, being contrasted with a plant of the soft rosy *Anna Alexieff* in splendid condition, the whole group being brightened up by a specimen of *Celine Forrester*, 5 ft. or more in diameter, and a mass of waxy foliage and bright sulphur-yellow flowers. Messrs. Paul & Son, Cheshunt, who were second, had large, well-furnished plants, but these, too, were a day or two behind as regards floral development. Among them we remarked a superb example of *Celine Forrester*, perhaps 6 ft. or more in diameter, but scarcely in bloom; *Dr. Andry*, a glowing crimson variety, with bold, dark foliage; and *Victor Verdier*, in excellent condition; as were also *Anna Alexieff* and the soft rosy *Princess Mary of Cambridge*, one of the best of all light roses for culture in pots; *Horace Vernet* and *Madame V. Verdier* were well furnished with bloom, as were also *John Hopper* and a specimen of *Madame de St. Joseph*—the latter was simply superb; it is, as most people know, a Tea-scented variety, which bears globular, smooth petalled, salmon-tinted flowers, and, like *Souvenir d'un Ami*, is always welcome as a distinct and effective plant in a collection. In the class of twenty Roses in pots, Mr. Charles Turner, who was the only exhibitor, had a beautiful group. Here we noted the new *H. P. Annie Laxton*, evidently a first-rate variety, having large, full, rosy flowers; and *La France*, bearing splendid blossoms; *Rev. J. B. M. Cunn*, bright crimson; *Marie Van Houtte*, with glossy foliage and delicate sulphur-tinted flowers; *Miss Hussard*, another variety, evidently most noticeable as a pot-plant, bearing large full flowers of a silvery-rose colour, a shade or two darker than that of *La France*. The rich, rosy-crimson *Marie Bannmann*, and the salmon-tinted *Souvenir d'un Ami* were also well represented. In the amateurs' class, Mr. J. W. Moorman carried off the premier award with six well-grown plants, among which we noted *Annie Laxton Rose*, *Victor Verdier*, the creamy flesh-tinted *Madame Villermoz*, and one or two others. Mr. W. Phillips, Youngsbury, had a group consisting mostly of Tea-scented varieties. In the miscellaneous class Mr. W. Paul had an effective and well-grown group of Roses in pots, including some of the best varieties, and also six large stands of cut blooms in splendid condition. Mr. Copp, Oxford, sent several superb stands of the soft, golden-coloured *Maréchal Niel*. Messrs. Paul & Son, Cheshunt, showed six stands of cut Roses, among which we noted very fine flowers of *La France*, *Maréchal Niel*, *Niphetos* (one of the sweetest of all Tea-scented varieties), *Gloire de Dijon*, and others.

Florists' Flowers.—Show and French *Pelargoniums* were furnished by Mr. Charles Turner and Mr. James, of Isleworth, both of whom had excellent collections. Among the show kinds sent by Mr. Turner we noticed good plants of *Scottish Chieftain*, crimson and black; *Duchess de Morny*, pink or flesh and white with a dark spot; *Mail of Honour*, a large, smooth, flesh-coloured flower, having a dark blotch on the upper petals; *Claribel*, white with rosy spot; and *Digby Grand*, an elegantly crisp kind of the *Dr. Andry* type. In the fancy class Mr. Turner had *Princess of Teck*, white, rosy blotch; *East Lynne*; *Excelsior*, bright carmine, white eye; *Jubot*, maroon-crimson, and white, rosy spot; *Henry Baily*, carmine-maroon, white eye; and *Helen Beck*, all in excellent condition, considering the earliness of the season. Mr. James had among large-flowered kinds, *Sultan*, rose and black; *Princess of Denmark*, white and crimson; *Pompey*, scarlet and black; *Pericles*, flesh, upper petals maroon; *Statesman* and *Snowflake*, the latter white with a purple spot. Among fancy varieties Mr. James had *East Lynne*, dark carmine and white; *Roi des Fantaisies*, carmine and white, with rosy-spotted lower petals; *Princess of Teck*, white and rose; *Ellen Beck*, lilac edged with white, and having a clear white eye. Messrs. F. & A. Smith sent several seedling *Pelargoniums* for certification, including *Perle Blanche*, white, rosy-purple spot; *grandiflorum*, flesh with maroon spot—a large-flowered kind; *Improvement*, a very vivid rosy-scarlet variety of good habit. A plant of a spreading and elegant-habited dark-leaved *Zinnia* came from the same exhibitor. Mr. James furnished the best *Cinerarias*; they were dwarf yet robust in habit, and the flowers, which were of good form, were arranged in dense masses, vivid and distinct in colour. Mr. J. T. Salter, of Laurie Park, had a good group of herbaceous *Calecolarias*, to which a first prize was awarded; Mr. James had also a collection of compact, well-bloomed specimens. Mr. Edward Shenton, 17, Mansfield Road, sent a group of Alpine and self-coloured *Auriculas* swathed in cotton wool, which entirely destroyed their beauty. Two stands of fresh and beautiful Alpine *Auriculas* came from Mr. Charles Turner, and the same exhibitor had new *Azileas* and other plants.

Miscellaneous Plants.—Mr. R. Parker, Tooting, showed a large group of hardy flowers in pots, the most effective among them being *Palox Nelsonii*, studded with snow-white flowers; *Cheiranthus Dilleni*, with yellow, pink, and purple-tinted blossoms; *Centaurea montana alba*; and several large pots of pink, lilac, blue, and white *Scillas* of the *S. nutans* and *S. campanulata* types. Mr. H. Hooper, Bath, had a small collection of seedling *Violas* or *Pansies*, and *Daisies* in good condition. Messrs. Rollisson and Mr. Ley furnished good groups of the parti-coloured *Dracenas* now so popular, and in Mr. Ley's collection we especially noted the elegantly recurved, bright green *Dracena lutescens* as being one of the most distinct and effective, the zebra-striped *D. Goldiana* excepted. Mr. Coppin, Shirley, sent a group of *Tricolor Pelargoniums*, a class of plants which may be said to have had their day, inasmuch as they do not seem now to meet with a welcome anywhere. Mr. S. Moyse, 22, Stockbridge Road, Bournemouth, sent two well-arranged bouquets, viz., a bridal one formed of *Bouvardia*, *Eucharis*, *Phalenopsis*, *Tea Roses*, *Orange blossom*, and other white flowers, tastefully garnished with Maiden-hair

Fern; and a ball-room one which was composed of rosy and yellow Roses, Orchids, Bouvardias, Eucharis, and Lily of the Valley, with here and there a sprig of Hoya flowers and spray-like Maiden-hair Fern. Several well-filled Fern cases and glass shades were exhibited by Messrs. Dick Radclyffe & Co., High Holborn, who also had some window-boxes of novel design. Mr. M. Hodgkins, 35, Hyde Grove, Manchester, had a large collection of skeletonized and bleached Fern fronds, and leaves of various kinds including some large Bauhinia, Ficus, and Maple leaves, Poppy-heads, and fruits of *Datura Stramonium*. This collection was one of the most perfect, as regards execution and arrangement, that we have yet seen. Mr. Colbourn, gardener to Burn Blythe, Esq., Woolhampton, Bucks, sent an excellent sample of the fruit of the Japanese Medlar (*Mespilus japonica*); and Mrs. Halstead, Palace Square, Upper Norwood, had a pretty Fern-box formed of virgin Cork, Fir cones, and Oak galls.

ROYAL HORTICULTURAL SOCIETY'S SHOW.

MAY 15.

THIS meeting, though comparatively a small one, was nevertheless one of considerable interest to horticulturists. The Roses in pots sent by Messrs. Veitch were remarkably fresh and perfect, both as regards leafage and bloom, as were also some choice Orchids from Sir T. Lawrence's collection. Mr. Charles Turner showed a fine group of Azaleas, and cut Roses in excellent condition came from Messrs. W. Paul & Son.

First-class Certificates.—These were awarded to the following new and rare plants:—

Dracæna Robinsoniana (Veitch).—A robust-habited variety, from the South Sea Islands, the young leaves of which were of a creamy-white colour suffused and striped with rose.

Azalea mollis Couleur de Paille (Veitch).—A dwarf and floriferous seedling variety, of a soft and pleasing yellow colour, admirably adapted for pot culture and early spring flowering as a greenhouse plant.

Oncidium crispum marginatum (Sir T. Lawrence).—A large-flowered form of *O. crispum* with the colouring of *O. Forbesi*, but with much larger flowers. The largest bloom on this plant was fully 3 in. in diameter, the glossy brown petals and reniform lip being margined with a broad, brown-spotted, yellow band.

Cypripedium occidentale (H. J. Elwes).—A graceful little two-flowered plant, having the habit and flowers of *C. Calceolus*, except that in this case the slipper-shaped lip is pure white instead of yellow. It is a pretty little plant, superior in beauty to *C. candidum*, of which it may possibly prove to be a variety. Lindley describes a similar plant under the name of *C. cordigerum* as being found in Europe, Dahuria, and, according to Thunberg, in Japan, adding, that its characters are those of *C. Calceolus*, with the exception of the white lip.

Miscellaneous Plants.—A remarkably well-grown group of pot Roses, fine-foliaged plants and Ferns came from Messrs. James Veitch & Sons, Chelsea, who also sent three or four new varieties of the Chinese *Azalea mollis*, to one of which allusion has just been made. The new white-flowered *Hydrangea*, Thomas Hogg, was again shown in admirable condition, the colour being whiter, if possible, than before. A new *Dracæna*, named *D. Robinsoniana*, more fully described elsewhere, was very attractive in this group, as was also *D. speciosa*, another distinctly-marked form; also, from the South Sea Islands, *Adiantum æmulum*, a distinct species, even more graceful than *A. cucullatum*, was much admired. Messrs. Veitch & Sons also furnished *Cinnam Makoyanum*, a kind which closely resembles *C. amabile*, having strap-shaped, dark green, glossy leaves, and a tall scape of drooping, Lily-like flowers, of a delicate flesh colour, the buds being bright rose. The group of pot Roses sent by this firm consisted of some thirty or forty plants, amongst which we especially noted a fresh little specimen of *Celine Forrestier*, a delicate sulphur-tinted variety, bearing five or six perfect blooms, reminding one of those of *Niphetos* as regards perfect form and substance of petal; the new white *Madame Laclarme* was also in excellent condition, a small but well-bloomed plant bearing eight finely-shaped flowers; a seven-flowered plant of Captain Christy was as nearly perfect as Roses in pots can be, and there were excellent plants of *La France*, the vivid rosy-crimson Beauty of Waltham, and a plant of *Alba Rosea* bearing six superb flowers, one of which would have graced the most select stand of exhibition blooms; Duke of Edinburgh was set off to advantage among the paler kinds, its flowers being of a vivid crimson-scarlet colour; and a plant of *Paul Neron* was remarkable for its pale, rose-tinted, large flowers. Messrs. Mayo & Co., Corn Market, Oxford, sent a choice group of *Maréchal Niel* Rose-blooms tastefully arranged on beds of green Moss. Mr. Turner, Royal Nurseries, Slough, contributed a large group of half-specimen Azaleas, amongst which were finely-bloomed plants of *Monseigneur Cuvellier*, a variety with rich crimson purple-shaded flowers of good form; *Charles de Back*, with large stiff-petaled blossoms of a bright purple colour; *Mrs. Turner*, a free-growing variety, with flowers possessing a pink ground edged with white, the upper petals being spotted with purplish-crimson. Flag of Truce was the best pure white double-flowered kind. Flambeau is a very effective kind with deep crimson blossoms. Amongst the newer kinds were small plants of *Jean Vervaene*, with flowers of a rich salmon colour, distinctly edged and, in some cases, striped with white. Messrs. Cutbush & Sons, Highgate, exhibited a group of miscellaneous plants consisting of Palms, *Dracænas*, and hard-wooded greenhouse plants, among which we noted *Boronia serrulata*, well covered with lively rosy-purple blossoms, good pans full of the scarlet-flowered *Correa cardinalis*, well-bloomed *Ericas*, and *Genetylis tulipifera*. Sir Trevor Lawrence, of Burford Lodge, Dorking, sent six choice Orchids in the best health and floriferous vigour. These

consisted of a plant of *Odontoglossum citrosimum* roseum, bearing three graceful-drooping spikes of rosy-lipped flowers. A plant of *O. Andersonianum* also bore a branched spike of richly-spotted blossoms, and *O. triumphans* bore a long, twelve-flowered spike of rather pale but shapely flowers; *Oncidium metallicum*, a near relative to *O. diadema*, also bore a long, flexuose spike, of rich brown flowers, the peculiarity of which consists in their fringed points being interlocked so as to form an arch over the column in front of the flower. A strong plant of *Cattleya Schilleriana* bore seven large and richly-coloured blossoms, the olive-green sepals of which are spotted with purple, the broad, fringed, white lip being richly veined with bright carmine. A large-flowered form of what is called *Oncidium Forbesi* in gardens was also included in this group under the rather formidable name of *O. crispum marginatum grandiflorum*. *Houlletia Lowi*, to which a botanical commendation was given, is a large-flowered, sulphur-coloured Orchid, the point of interest about which is its large, three lobed lip having an orange, glossy, horseshoe-shaped disc. Mr. J. Wills, Sussex Place, Old Brompton, sent an attractive group of *Odontoglossums*, *Cypripediums*, and Maiden-hair Fern in admirable condition; *O. Alexandrae*, *O. Pescatorei*, and the rare and beautiful *O. Andersonianum* were included in this group; these kinds being largely grown by M. Wills for decorative purposes. A very pleasing group of new seedling *Clematises* came from Mr. Charles Noble, Bagshot, among which we noted *President*, a large, violet-purple, eight-sepalled flower, 7 in. in diameter; *Undine*, a double-flowered lilac; *Margaret Dunbar*, a shapely, broad-sepalled, lilac form of great beauty; and *Mademoiselle Torraui*, also a very distinct and pleasing form, having pale lilac, eight-sepalled flowers shot with a rosy metallic tint. Messrs. W. Paul & Son, of Waltham Cross, showed six excellent stands of cut Roses, among which we noted *Star of Waltham*, one of the most robust and desirable of all English-raised varieties, also *St. George*, a shapely flower of a rich purplish-crimson colour; *Peach Blossom*, also conspicuous, its globular flowers being of a delicate rosy-carmine tint; *La France*, *Maréchal Niel*, *Devoniensis*, *Paul Neron*, and *Souvenir d'un Ami*. Mr. Ollerhead sent a large flowering branch of *Aristolochia brasiliensis*, bearing three or four great purple-speckled and veined pitcher-like flowers. A stand of cut flowers of *Pelargonium "New Life"* came from Mr. H. Cannell, Swanley, Kent, but the blossoms were less distinctly marked than we have hitherto seen them, having, in fact, a speckled appearance, instead of the clear white stripe which sometimes shows itself. Mr. F. Bell, Lakenham, furnished three examples of *Adiantum Capillus-Veneris corymbiferum*, a crested Maiden-hair, very similar to the *A. Luddeemannianum* exhibited last season by Messrs. Veitch & Sons. Mr. R. Dean, Ealing, showed a group of large-flowered *Mimuli*, the colours of which were very varied and distinct; also a basket of blue bedding Pansies, namely, *Blue King*, a light blue with dark spot; and *Blue Beard*, a darker and richer-tinted variety. With these came *Viola pedata*, having lobed leaves and lilac-blue flowers; *Sempervivum Boissieri*, a compact, reddish-tinted form, with a metallic hue on the green tip of the lance-shaped, ciliated leaves; a pot of the dwarf blue and white-flowered *Veronica repens* was much admired, as were also some velvety *Polyanthuses* and a large mass of *Saxifraga granulata fl.-pl.*, bearing greenish-white flowers. Mr. Elwes, Preston, Gloucester, sent *Tulipa undulatifolia*, a crimson-flowered plant in the way of *T. Eichleri*, but having smaller crimson flowers and narrow, undulated, margined leaves; the margin of yellow around the black spot at the base of each petal is also nearly entirely absent in this plant, which well deserves culture as a distinct and beautiful hardy Tulip; also *Calcocaria crenatifolia*, a clear yellow-flowered plant of slender habit; likewise *Elisena longipetala*, a curious, white *Amarylloid*, having *Paneratium*-like, white flowers, with a deflected, flattened corona.

Fruit and Vegetables.—Mr. Jenks, gardener to D. Larnack, Esq., East Grinstead, Sussex, showed a dish of excellent *Grosse Mignonne* Peaches, stated to have been gathered from a tree bearing 243 fruits. The fruits exhibited were very large and beautifully ripened for this comparatively early time of the year. Mr. Booth, gardener to J. Wright, Esq., showed a collection of seedling Cucumbers, amongst which were fruits of good size and quality, and also an example of the *White American Cucumber*. Mr. H. W. Ward, gardener to the Earl of Radnor, Longford Castle, showed seedling *Melons* of the green and scarlet-fleshed varieties; in both cases the fruit was of good flavour, considering the dull season in which they have been ripened. Mr. Douglas, Loxford Hall, showed a good fruit of *Tender* and *True Cucumber*.

ROYAL BOTANIC SOCIETY'S SHOW.

MAY 16.

THIS exhibition was a large and attractive one, Orchids and fine-foliaged and flowering plants being well represented. Among the exhibits which call for especial notice may be mentioned the bright and attractive group of *Rhododendrons* and yellow Chinese *Azaleas*, fringed with cut-leaved Japanese Maples, and other fine-foliaged plants, shown by Messrs. Veitch & Sons, and the large and well-bloomed specimen Roses furnished by Mr. Charles Turner and Messrs. Paul & Son. Mr. Chapman sent a beautiful sample of the lilac *Bongainvillea glabra*; and in Messrs. Jackson's collection we remarked a large and well-bloomed *Imantophyllum miniatum*, one of the most distinct and effective of flowering plants for purposes of exhibition. Mr. Denning showed a well-grown plant of *Odontoglossum citrosimum*. Mr. Williams had a fresh and floriferous *Vanda snavis*; a well-bloomed *Dendrobium Falcoueri* was sent by Mr. Michaels; and Mr. Child showed a plant of *Aerides Fieldingi* in admirable condition, being four large branched spikes; and also a noble

specimen of *Oncidium ampliatum majus*, elsewhere alluded to. Mr. Legg's fine-foliaged plants were remarkable for their freshness and vigour, his *Cycas revoluta* bearing fifty-four new leaves, being unique, and his plants of *Croton Wismanni* and an eight-leaved Palm (*Stevensonia grandifolia*) were as near perfect as could be desired.

Certificates.—These were awarded to the following new and rare plants:—

Anthurium Browni (Veitch).—An enormous glossy-leaved Aroid already described.

Adiantum Capillus-Veneris corymbiferum (Bell).—A variety of the common British Maiden-hair Fern, very similar to *A. Ludemannianum*.

Clematis Lady Egmont (Jackman).—A large and sepalled variety, having delicate bluish-lilac flowers of good form and substance, admirably suited for pot culture.

Clematis Florence (Jackman).—A delicate lilac-tinted and sepalled variety, the margins of the sepals being of a deeper tint. It is a distinct and floriferous variety well worth culture.

Blandfordia flammæ elegans (E. G. Henderson).—A stately grassy-leaved plant, bearing a cluster of rich orange-yellow, bell-shaped flowers on the apex of a slender stem 2 ft. in height. It is a distinct and showy cool-greenhouse plant well worth attention.

Clematises.—Margaret Danbar, Xerxes, and Mademoiselle Torriani were shown by Mr. C. Noble, and received floral certificates. A description of them will be found in the report of the Royal Horticultural Society.

Mimulus pardinus fl.-pl. (E. G. Henderson).—An effective semi-double variety of a purplish-crimson colour spotted with black maroon.

Croton Andreanum (Williams).—A robust and showy variety of Continental origin.

Dracæna terminalis alba (Williams).—An effective, free-growing plant having distinct white markings on the younger foliage; admirably suited for decorative and market purposes.

Aralia filicifolia (Williams).—A graceful, cut-leaved species, the foliage of which is of a bright apple-green tint.

Adiantum Williamsi (Williams).—A graceful Fern, already certificated and described.

Microlepia anthesisifolia (Williams).—A slender, finely-divided species, well worth a place in collections.

Dendrobium suavissimum (Low & Co.).—A showy and distinct plant, in habit resembling a strong-growing form of *D. chrysotoxum*; the flowers are borne eight or ten together on a slender, drooping spike, two or more of them being borne at the apex of the spindle-shaped last year's bulbs. The individual flowers measure 2 in. or more in diameter, the petals being broad and having a glossy, wax-like appearance. The whole flower is of a vivid golden tint, the lip being crispulate and fringed, and having a bold, crimson-black blotch in the centre. As regards size and colour the flowers come nearest to those of *D. Cambridgeanum*, and they possess, moreover, a delicate fragrance. Amongst Orchids introduced of late years this is one of the most distinct and effective.

Hardy Japanese Azalea indica Rollissoni (Rollisson & Sons).—A very dwarf and floriferous plant scarcely 6 in. in height, the little tufts of bright green leaves being nearly entirely hidden by double rosy flowers, which remind one of those of rosy-coloured Balsams; it is said to be hardy, and is a distinct and attractive little plant.

Lomaria discolor bipinnatifida (Williams).—A free-growing, bright green-crested Fern, admirably adapted for decorative purposes.

Stove and Greenhouse Plants.—Collections of these came from Messrs. Jackson & Sons, Kingston, Mr. B. S. Williams, Holloway, and Mr. J. Peed, Roupell Park, Norwood. The most conspicuous plants in these collections were Azaleas, *Genetyllis tulipifera*, *Apelexis macrantha purpurea*, *Rhododendron Princess Alice*, *Anthurium Scherzerianum*, *Ixora Williamsi*, *Clerodendron Balfouri*, and one or two Cape Heaths. A magnificent collection of 10 stove and greenhouse plants was staged by Mr. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley; it contained profusely-flowered specimens of *Dracophyllum gracile*, *Anthurium Scherzerianum*, *Bougainvillea glabra*, *Chorozema varium nanum*, *Pimelea mirabilis*. Mr. Wheeler also showed a good collection, in which were Heaths, Azaleas, and *Genetyllis*. Mr. B. Peed, St. John's Lodge, Norwood, had good examples of Azaleas, *Ixora amboynensis*, *Epacris Eclipse*, and *Imantophyllum miniatum*. Six large and well-bloomed Azaleas came from Mr. Ratty, gardener to R. Thornton, Esq. Azaleas in good condition also came from Mr. Turner; conspicuous among them were *gracilis*, *Apollo*, *Charmer*, and *Due de Nassau*. Messrs. Ivory & Sons, Dorking, showed a miscellaneous collection of Azaleas, consisting of small but compact, well-flowered plants. In the amateur class for 12 Cape Heaths, there were three competitors, all of whom staged neatly-grown and well-flowered plants. Mr. Legg, gardener to S. A. Ralli, Esq., Cleveland House, Clapham, had *Erica aristata superba*, *E. eximia superba*, and *E. Cavendishi* in excellent condition. Mr. Peed contributed good plants of *Erica magnifica*, *E. ventricosa coccinea minor*, and *E. depressa multiflora*. Mr. Wheeler, gardener to Sir F. H. Goldsmid, Bart., had good examples of *E. persoluta alba*, *E. depressa*, and *E. coccinea minor*. In the nurserymen's class for 12 Cape Heaths Messrs. Jackson staged well-bloomed specimens of *Erica perspicua nana*, *E. ampullacea obtata*, and *E. florida*; smaller collections of Heaths also came from other growers. Six fine-foliaged plants were exhibited by Mr. G. Legg; amongst these we remarked fine specimens of *Cycas revoluta*, *Stevensonia grandiflora*, and *Croton Wismanni*. Mr. Ley, Croydon, also exhibited a group containing good plants of *Cocos Weddelliana*, *Pandanus Veitchi*, and *Croton angustifolium*. Mr. F. Hill, gardener to H. Taylor, Esq., Avenue Road, Regent's Park, had also a good collection. Six fine-

foliaged plants, consisting of Yuccas, Agaves, and Cycads, also came from Mr. B. S. Williams, of Holloway. Mr. E. Tudgey showed *Pandanads*, Cycads, and *Crotoms*, and a group of exotic Ferns, in which was a very fine specimen of *Alsophila australis*. Mr. Wheeler also had a collection, in which were good plants of *Adiantum Farleyense* and *Lomaria gibba*. Of show *Pelargoniums* there was only one exhibitor in each class. Mr. Turner, Slough, showed six magnificent plants, amongst which were *Claribel*, a variety with white flowers, the upper petals of which were slightly spotted with rosy-purple; *Scottish Chieftain*, a very dark crimson-flowered kind, of neat habit; and *Maid of Honour*, with rich rosy flowers, dark crimson-spotted upper petals, and clear white centre. Mr. James, gardener to W. F. Watson, Esq., Redles, Isleworth, exhibited two collections of well-grown plants, but the flowers were scarcely open; amongst them we noted *Snowflake*, *Pompey* and *Zephyr*, *Sultan*, *Rob Roy*, and *Prince Leopold*. The same exhibitor also showed twelve herbaceous *Calceolarias* in excellent condition. The best collection of *Roses* was shown by Mr. Turner, Slough, who had well-flowered plants of *Madame Lacharue*, *Perfection de Monplaisir*, *Madame Victor Verdier*, and *Souvenir de C. Montaut*. In the same class Messrs. Paul & Sons, The Old Nurseries, Cheshunt, showed good plants of *Madame Lacharme*, *alba rosea*, *Souvenir d'un Ami*, and *Annie Laxton*. Of new *Roses* Mr. Turner had good examples of *Triomphe de France*, a kind with well formed rosy-pink blossoms; *President Leon de St. Jean*, a dark, velvety-crimson flowered kind, very robust in habit, and a black flowered variety named *Miss Hassard*. Messrs. W. Paul & Sons, Waltham Cross, exhibited a miscellaneous collection of pot *Roses*, amongst which were well flowered examples of *Captain Christy*, *Etienne Levet*, *Paul Neron*, *Princess Beatrice*, and *Madame Margottin*. From the same firm also came six boxes of cut *Roses*, amongst which were large and well coloured blooms of *Princess Christian*, *Louise Van Houtte*, *Narcisse*, *Maréchal Niel*, and *Rubens*. Mr. Turner showed two good boxes of *Tulips* in good condition, and a miscellaneous collection of *Auriculas*, among which were some very distinct and good varieties. A collection of *Rhododendrons*, Chinese *Azaleas*, *Spiræa palmata*, and bronze and green-leaved *Acers*, contributed by Messrs. Veitch & Sons, formed one of the most attractive features of the show, and facing this group was another miscellaneous collection of plants sent by Mr. B. S. Williams, of Holloway. Mr. Laing, Forest Hill, contributed a well-grown collection of *Palms*, *Pandanads*, *Caladiums*, *Aralias*, &c.; and opposite these was a group of pot *Roses* from Messrs. Veitch & Sons edged with *Acers*. Mr. Ley showed a collection of Ferns, amongst which we noted fine plants of the Australian Bird's-nest Fern (*Neottopteris australasia*) and *Davillia Mooreana*. Messrs. Cutbush & Sons contributed *Palms*, *Heaths*, and *New Holland plants*; and Mr. Wheeler also staged a group of Ferns, *Palms*, *Azaleas*, and other ornamental plants. Messrs. Harrison & Sons sent well-flowered examples of their new Musk (*Mimulus moschatus Harrisonii*). Mr. J. Mayo, Oxford, showed two boxes of cut blooms of *Maréchal Niel* *Roses*. Mr. Noble, Bagnott, staged a well-flowered group of *Clematises*. Mr. H. Coppin, The Rose Nursery, Croydon, showed herbaceous *Calceolarias* and a collection of tricolor *Pelargoniums*; amongst the latter were well-coloured plants of *Proteus*, *Lady Dorothy Neville*, and *Countess Tasker*. A box of cut *Roses* and *Verbenas* was also shown by the same exhibitor. Mr. Robert Parker showed a collection of old-fashioned border plants, amongst which were good examples of *Narcissus poeticus*, *Scilla campanulata alba* and *rubra*, *Aubrietias*, *Pæonia officinalis rubra*, various *Saxifrages*, *Irises*, and good specimens of *Solomon's Seal*.

Orchids.—Amongst these we noted the following, viz., *Cattleya Mendelli*, with fine white frilled petals, and a carmine blotched lip, several good pans of the Suovy Lady's-slipper (*Cypripedium niveum*), and the speckled *Odontoglossum* (*O. ævium majus*) was represented by several well bloomed specimens. Mr. B. S. Williams had a well grown plant of the last named, bearing six spikes, and also a fine example of *O. Pescatorei*; a large plant of the golden blossomed *Oncidium Marshallianum*, *Dendrobium densiflorum*, with about twenty clusters of golden flowers, and a remarkably handsome plant of the white purple-spotted *Vanda suavis*, bearing four spikes. Messrs. T. Jackson & Son had a still more floriferous example of the last named, bearing seven spikes; *Odontoglossum citrosum roseum*, bearing seven spikes; *Saccolabium retusum*, having six graceful rosy-white speckled flowers; and a plant of *Cattleya Mossie superba*, having twelve clear rosy-carmine flowers. Mr. Denning sent a splendid group of Orchids from Lord Londesborough's collection, including a remarkably vigorous plant of *Odontoglossum citrosum*, bearing three large spikes, one of which was branched at the base, and bore twenty-five flowers; a plant of the star-like white-purple blotched *O. Roezli* was furnished with fourteen large flowers; and a well grown pan of *O. Pescatorei* bore five or six spikes; on the vivid carmine petalled, crimson-purple-lipped *Cattleya superba* there were four perfect flowers; and the bright rosy-carmine *Dendrobium Parishii* bore five or six well-bloomed pseudo-bulbs. Mr. Child sent his large specimens of *Oncidium amplicatum* and *Cypripedium barbatum*, to which we have elsewhere alluded, and a handsome plant of the graceful *Aerides Fieldingi* bearing four good spikes. Mr. Philbrick showed a well-bloomed plant of *Epidendrum vitellinum majus* bearing nine or ten spikes of orange-scarlet flowers, and a large plant of *Dendrobium densiflorum* fully 4 ft. in diameter, a mass of fresh foliage, and large drooping trusses of flowers. Mr. Newman contributed six well-grown plants, among which we remarked *Phalenopsis Ludemanniana*, bearing forty or fifty flowers; a well-grown pan of *Cypripedium barbatum*; *Dendrobium Wardianum*, a vigorous mass bearing twenty-six flowers; and a healthy example of *Cypripedium Stonei* bearing four large, richly-coloured blooms on a stout scape 2 ft. in height. Perhaps the most noticeable plant in this group was a graceful example of the handsome *Dendrobium Falconeri*.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

CUT FLOWERS:*

CLASSIFIED ACCORDING TO COLOURS AND SEASON WHEN OBTAINABLE.

DURING last year readers of THE GARDEN were furnished every month with a list of flowers which were then in season, and which could be either found in Covent Garden market or could be procured by being ordered of the florists there a couple of days beforehand. From these monthly lists Orchids and rare stove plants were excluded. It has occurred to me that it might be interesting to some, and useful to others, if I were to tabulate the information contained in those lists in a manner which would show at a glance, not only what colours are obtainable during each month, but also for how long such colours may be calculated upon as being available, and at what seasons they are to be had in the greatest variety. The tabular form in which they are now arranged will, I apprehend, be interesting to those who care to examine such questions as the proportions in which different colours enliven our fields and gardens, and the extent to which the preponderance of certain colours is influenced by the season of the year. To professional florists, these tables are not likely to be of use, unless they may suggest to them the introduction into their trade of some flowers not at present grown by those on whom they depend for their supplies, and who are always ready to grow any new plant for which there is likely to be a demand. In illustration of this I need only refer to the comparatively recent introduction to Covent Garden of forced Spiræas, Lilacs, Solomon's Seal, Orchids, &c. But to the amateur bouquet-maker and floral decorator, and also to many a gardener who is not in constant practice in this branch of art, I believe that these tables are likely to prove useful, and one illustration will suffice to explain in what manner:—It is a common occurrence in the trade to receive an order (and it therefore cannot be unusual for a gardener to be requested) to make up a bouquet or a head-dress that will "go" with a dress of a certain colour, a piece of which is forwarded. Now every gardener knows the colour of all the flowers which he grows, but every gardener does not, by a very long way, grow all flowers, or even all colours. When therefore he cannot find, under his own charge, flowers of the precise colour which he wants, a glance at these tables will most probably remind him of some other flower which will answer the required purpose, and which he can procure from some neighbouring gardener or nurseryman.

Blue Flowers.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Campanula ..												
Cineraria ..												
Cornflower ..												
Eranthemum ..												
Gentianella ..												
Hepatica ..												
Hyacinth ..												
Italian Alkanet ..												
Iris ..												
Larkspur ..												
Lobelia ..												
Myosotis ..												
Nemophila ..												
Omphalodes verna.												
Pansy ..												
Salvia patens ..												
Siberian Squill ..												
Witsenia ..												

In the above list of blue flowers there is not one that I can recommend as a good colour by candlelight. All the darker shades then appear nearly black, while the lighter shades assume a grey tint. Perhaps *Nemophila* comes out better than the rest from the ordeal of artificial light. The stems of this

The months in which the flowers of the various colours bloom are indicated by a dash, thus (—).

flower, and also of *Hepatica* and *Lobelia*, are so slender that they need the support of a wire to keep them up. *Gentianella*, *Eranthemum*, and *Larkspur* are useful for pinushion arrangements; but if used in other ways they generally require an artificial stem. *Salvia*, *Omphalodes*, and *Alkanet* should be gummed round the outsides of the corollas to prevent their falling out of the calices. *Iris* blooms look better by themselves, set off with broad-leaved Grasses, than when mixed with other flowers. *Witsenia* is one of the least common and best blues we have, and should be found in every greenhouse.

Purple Flowers.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Anemone ..												
Aster ..												
Cineraria ..												
Crocus ..												
Heliotrope ..												
Hollyhock ..												
Hyacinth ..												
Iris ..												
Larkspur ..												
Lilac ..												
Lupine ..												
Michaelmas Daisy ..												
Pansy ..												
Phlox ..												
Ranunculus ..												
Scilla bifolia ..												
Sweet Pea ..												
Syrian Hibiscus ..												
Tulip ..												
Verbena ..												
Violet ..												

The foregoing list of purple flowers, like the preceding one, is more suitable for daylight decorations than for those required in the evening. The judicious use of wires of different thicknesses will be found of great advantage for many of these flowers. Violets require support unless they are massed in bunches, an arrangement which must be condemned as heavy and unnatural. If *Cinerarias* or *Michaelmas Daisies* are to form portions of a mixed bouquet, wire stems prevent a great waste of floral material. The blooms of annual *Asters*, *Anemones*, and *Ranunculuses* are so heavy that the assistance of stout wire keeps them in form for a much longer period than they would be without it. *Lilac* and *Heliotrope* are both the better for a piece of thin wire twisted round the flower-stem.

Lavender or Mauve

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Agapanthus ..												
Aster ..												
Chinese Primrose ..												
Chrysanthemum ..												
Cineraria ..												
Cyclamen ..												
Dahlia ..												
Fuchsia ..												
Heath ..												
Hollyhock ..												
Hyacinth ..												
Iris ..												
Pansy ..												
Primrose ..												
Ranunculus ..												
Stokesia ..												
Tulip ..												
Violet ..												
Wistaria ..												

The lavender and mauve flowers have been included in one list, because it is difficult to draw the line between the two colours. They range from the bluish-lavender of *Agapanthus* and *Stokesia* to the crimson shades of mauve which we find in certain *Primroses*, *Dahlias*, *Chrysanthemums*, and *Tulips*. It is usual to arrange *Hollyhocks*, *Dahlias*, and *Chrysanthemums* in low flat dishes; but much more effective displays may be made of these large flowers if they be placed in more natural positions, provided that the necessary wire supports are concealed from view. *Wistaria* makes a most useful droop or fringe for a tall dish or vase; but if it be required to keep it in a horizontal position, a fine wire twisted round the flower-stalk up nearly to the point is a great assistance.

Pink Flowers.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Almond												
Antirrhinum												
Aster												
Azalea												
Begonia												
Bouvardia												
Camellia												
Carnation												
Chinese Primrose												
Chrysanthemum												
Cyclamen												
Dahlia												
Dielytra												
Dogstooth Violet												
Epiphyllum												
Everlasting Pea												
Fancy Pelargonium												
Fuchsia												
Gladiolus												
Heath												
Hepatica												
Hollyhock												
Hyacinth												
Hydrangea												
Lily												
Oleander												
Phlox												
Pyrethrum												
Rhodanthe												
Rhododendron												
Ribes												
Rose												
Sweet Pea												
Sweet William												
Syrian Hibiscus												
Tulip												
Verbena												
Willow Herb												
Zinnia												
Zonal Pelargonium												

This list of Pink flowers is nearly twice the length of either of those preceding it, and there are but few in it which do not look as well by lamplight as by daylight. Camellias and Roses generally require to have three wires passed through them horizontally near the base of the flower, and the six projecting ends turned down and fastened to the stem, or (where the stem has been removed) to a substituted stem. Epiphyllums always require a wire stem, and care should be taken to curve the flower so that it may hang in a natural way. The same remark applies to Fuchsias, where single blooms have to be made use of. Pelargoniums and Azaleas require to be gummed, the former inside the corolla, the latter outside. Gladioli look best alone, and so do Pyrethrums; their foliage in each case being the best companion, failing which, use Grasses with the Gladiolus, and Ferns with the Pyrethrum. Dielytra never looks better than when grouped with Solomon's Seal.

Orange Flowers.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Abutilon												
Calceolaria												
Carnation												
Chrysanthemum												
Cowslip												
Crocus												
Dahlia												
Erysimum												
Eschscholtzia												
Hollyhock												
Lily												
Marigold												
Narcissus												
Polyanthus												
Potentilla												
Rose												
Tulip												
Zinnia												

Amongst orange flowers, Abutilon will always hold a high place in the estimation of decorators for fringing large bouquets or vases, and there is scarcely any period of the year when a least one or two blossoms may not be found upon a strong

plant of it, for it is one of our most continuous-blooming greenhouse shrubs, and there are several varieties of it. Some of the new Lilies are well worth cultivating for decorative purposes, as also the older species. The Tea Roses give us some soft shades of orange, and they can be had all the year round. Some of the double Zinnias are very handsome.

Yellow Flowers.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Allamanda												
Alyssum												
Antirrhinum												
Azalea												
Broom												
Buttercup												
Calceolaria												
Carnation												
Chrysanthemum												
Coronilla												
Cytisus												
Dahlia												
Eschscholtzia												
Genista												
Globe-flower												
Gorse												
Hollyhock												
Iris												
Jasmine												
Lachenalia												
Marigold												
Narcissus												
Polyanthus												
Potentilla												
Primrose												
Rose												
Sternbergia												
Tulip												
Wallflower												
Water Lily												
Zinnia												

Yellow flowers generally do not look so well by candlelight as by daylight, all but those of a very rich tone appearing nearly or quite white under any illumination excepting that afforded by the sun's rays. Sternbergia is a fine, old-fashioned, hardy Amaryllis, which one rarely sees out of nursery gardens; were it only a spring-flowering bulb, it would be more highly esteemed. Allamanda is one of the most free and continuous flowering of our stove plants, and I prefer before all the species the small-blossomed one which, curiously enough, is called *A. grandiflora*. Coronilla glauca is a valuable plant, since it flowers so late in the autumn, and in mild seasons and favoured localities furnishes us with blossoms out-of-doors all through the winter. Both the winter and the summer Jasmines are too apt to shed their flowers; but this can easily be prevented by placing a little gum around the corolla.

Scarlet Flowers.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Anemone												
Begonia												
Bouvardia												
Carnation												
Dahlia												
Epiphyllum												
Euphorbia												
Fuchsia												
Gladiolus												
Kalosanthes												
Lily												
Poppy												
Potentilla												
Ranunculus												
Salvia												
Sweet Pea												
Tropeolum												
Tulip												
Verbena												
Zinnia												
Zonal Pelargonium												

Scarlet flowers are not so numerous as crimson; nevertheless they make up for this shortcoming by the intensity and brilliance of their colour. The tuberous-rooted Begonias are a valuable addition to the list, being available in many shades

of scarlet. *Euphorbia jacquiniæflora* is one of the florist's most useful plants, being convertible to so many uses, its flowers (though not its leaves) lasting well without water. *Salvia*, too, is an important genus amongst scarlet flowers, the winter-flowering species lasting for a long period, but all the varieties require the corollas to be ginned outside. *Bevardia* is also valuable for small decorations, but every blossom needs to be wired. There are few flowers of more noble appearance than the Lilies, and the double variety of the Tiger Lily is a grand addition to our gardens.

In the list of white flowers just given there is a much larger variety to choose from than in any previous list. This is partly owing to the tendency which many plants with coloured flowers have to produce white-flowering variations, which are always acceptable, white being the orthodox colour for all natural, hymeneal, funereal, and ecclesiastical decorations. *Arum* does not group well with other flowers, and nothing but its own leaves really show it off to advantage. *Tuberose* and *Eucharis* require artificial stems. *Staphylea*, *Crassula*, and *Lily of the Valley* keep their forms better, if they have the support of a wire twisted round their stems. The massive bloom of the *Water Lily* requires the aid of a stout wire passed up its stem into the base of the flower, if required to remain upright. *Abutilon* and *Lapageria* are invaluable for drooping effects. *Solomon's Seal* is a most graceful plant, and is a beautiful addition to almost any bouquet of mixed flowers.

White Flowers.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Abutilon												
Alyssum												
Andromeda												
Anemone												
Antirrhinum												
Aponogeton												
Arabis												
Arbutus												
Arum												
Aster												
Azalea												
Begonia												
Bouvardia												
Broom												
Buttercup												
Camellia												
Carnation												
Chinese Primrose												
Christmas Rose												
Chrysanthemum												
Cineraria												
Crassula lactea												
Crinum												
Crocus												
Cyclamen												
Dahlia												
Deutzia												
Eucharis												
Everlasting Pea												
Fancy Pelargonium												
Foxglove												
Gardenia												
Gladiolus												
Guelder Rose												
Heath												
Hepatica												
Hollyhock												
Hyacinth												
Iberis												
Japan Spiræa												
Jasmine												
Lapageria												
Laurustinus												
Lilac												
Lily												
Lily of the Valley												
Menziesia												
Mock Orange												
Myosotis												
Myrtle												
Narcissus												
Pancreatium												
Paper Narcissus												
Phlox												
Pink												
Ranunculus												
Rhodanthe												
Rhododendron												
Roman Hyacinth												
Rose												
Syrian Hibiscus												
Snowflake												
Snowdrop												
Snowy Medlar												
Solomon's Seal												
Staphylea trifoliata												
Stephanotis												
Sweet Pea												
Tuberose												
Tulip												
Woodruff												
Water Lily												

Crimson Flowers.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Antirrhinum												
Aster												
Bachelor's Button												
Begonia												
Bouvardia												
Camellia												
Carnation												
Chrysanthemum												
Cyclamen												
Cydonia japonica												
Dahlia												
Epiphyllum												
Everlasting Pea												
Foxglove												
Fuchsia												
Hollyhock												
Hyacinth												
Kalosanthes												
Lapageria												
Lythrum												
Orchis												
Phlox												
Pink												
Poinsettia												
Polyanthus												
Potentilla												
Primrose												
Pyrethrum												
Ragged Robin												
Ranunculus												
Rhododendron												
Ribes												
Rose												
Spiræa palmata												
Stock												
Sweet Pea												
Sweet William												
Tulip												
Vallota												
Verbena												
Zinnia												

More than half of the crimson flowers here enumerated have been mentioned previously, because pink varieties of them are to be had. The remainder are, however, sufficiently distinct both in form and colour to justify a separate list. *Poinsettia*, *Lapageria*, *Kalosanthes*, and *Vallota*, for example, have each a character peculiar to itself, and require to be treated accordingly. *Polyanthus*, particularly the laced varieties, are deserving of more attention than they often receive, and they look well with *Primrose* leaves when their own cannot be spared. *Foxgloves* look best in tall vases; *Rhododendrons* require to be grouped by themselves. *Bells of Lapageria*, wired to a spray of climbing *Fig*, show to advantage when arranged spirally around the stem of any tall vase.

I cannot presume to believe that the foregoing tables are absolutely free from error, though I have taken considerable pains to make them as complete and accurate as I could. In addition to this, Mr. T. A. Dickson, of Covent Garden Market, has been good enough to carefully revise each list after it had been printed. Your readers may therefore regard this communication as the result of some years' obser-

vation by an amateur, checked by the professional knowledge of one of the most experienced dealers in the largest of British flower markets. W. T. T.

NOTES OF THE WEEK.

CANON HOLE ON THE SUNDAY OPENING OF PUBLIC GARDENS.—At the Manchester Show the other day Canon Hole spoke strongly in favour of the opening of gardens on Sundays. If he were told, "Would not you rather the people went to a place of worship?" his answer would be, "Why shouldn't a garden be a place of worship?" At all events, it is a better place of worship than a public-house.

RHODODENDRON CINNABARINUM.—This handsome Rhododendron is now in full bloom here in the open air, where the plant has stood uninjured without protection for many years past. It occupies an elevated situation, very dry, and open to the south, but it is well sheltered otherwise by evergreen trees and shrubs. The flowers, which are delicately scented and of a rich, orange-scarlet colour, are very useful in a cut state. Altogether it is one of the prettiest flowering evergreens which we possess.—JOHN GARLAND, Killerton, Eeeter. [It is a species to which, as grown at Killerton, the hack-nied term "splendid" may be justly applied.]

THE WHITE HYDRANGEA.—This plant has at last justified all the praises its introducer, Mr. Thomas Hogg, gave it on passing through London last year. Messrs. Veitch's specimens show that it is not only a good white, as Mr. Hogg informed us, but forms a fine free head of bloom. It is really what is sometimes called an "every-body's plant," and will no doubt soon find its way into every garden. It will form a fitting companion for the fine masses of blue and pink Hydrangeas which now adorn so many gardens in autumn.

AZALEA MOLLI8.—This new Azalea, of which we figure two varieties this week, has recently been abundantly introduced to our principal nurseries, where it may be readily obtained. It is extremely hardy, and also seems to bear forcing well.

ANEMONE PALMATA.—A single specimen of this somewhat rare and beautiful herbaceous plant is now flowering in Messrs. Backhouse's nursery, York. The flowers, which are large in proportion to the size of the plant, measure about 2 in. in diameter, and are of a soft orange-yellow colour. The plant grows from 4 in. to 6 in. high.—R. P.

DENDROBIUM BRYMERIANUM.—This, one of the most distinct of all the Dendrobiums, is just now blooming in Messrs. Veitch's nursery at Chelsea. It is slender in habit, and appears to be a free grower. Its flowers are nearly 2 in. in breadth, and of a uniform golden-yellow. The most characteristic portion of the flower is the rounded, deeply cleft, and elegantly-fringed margin of the lip, which is cut into ciliated lobes nearly 1 in. in length. This is one of the most beautiful of all the fringe-lipped Dendrobiums.—B.

GOOD DOUBLE CINERARIAS.—Double Cinerarias have not, as a rule, hitherto recommended themselves much, and indeed, have often been so ugly that one could hardly fail to regret their discovery. Messrs. Dickson & Co., of Waterloo Place, Edinburgh, however, have some varieties which are really double and richly-coloured; these are named Pink Perfection, Prince, and Queen of Violets. This last is the prettiest double blue or purple flower which we remember to have seen; the other two are also richly coloured. They are said to bloom profusely, and to make good pot plants.

GROUPS OF HARDY FLOWERS, &c.—Narcissus moschatus is a charming Daffodil, too rarely seen in cultivation. It resembles most nearly in shape the common N. Pseudo-Narcissus, but is of a pale sulphur, almost white, colour throughout. It flowers fully a month later than the common Daffodil. A brilliant contrast is obtained by planting it alongside of Anemone fulgens, lately figured in THE GARDEN. Another good arrangement of colours in a mixed border results from placing the dwarf Iris pumila in front of a clump of Jonquils; the delicate Aquilegia canadensis should grow near the St. Bruno's Lily (Antherium hiastrum), and Myosotis Imperatrice Elizabeth makes a more enduring group with Geranium macrorrhizum. Of bedding Violas there is no yellow which pleases me so much as the delicate lemon-coloured V. Grievi; if left in position for two years with Viola Bluebell the result at this season is truly beautiful. I have a diamond-shaped bed planted very satisfactorily just now. In the centre is a plant of the evergreen Cistus ladaniferus, and at each angle a tuft of Carex japonica variegata; the rest of the bed is planted with red Anemones coming through a ground of Viola Bluebell and Grievi; the former Viola (being rather taller) occupies the centre, and Grievi surrounds it. Mixed with the Anemones at the time of planting were many bulbs of Iris hispanica, whose strange flowers come as th

Anemones go. The plants of Viola are two years old, as such bloom much earlier and more profusely than young plants. A very sweet bed of Crucifers may be made as follows:—Centre, purple Honesty surrounded by blood-red Wallflower, next to which comes Belvoir Yellow Wallflower surrounded by Arabis albidia variegata, the outer line (which may be omitted in small beds, or the central clump of Honesty may be dispensed with) being Aubrietia grandiflora. This is a striking bed, in great favour with the bees; the Aubrietia should not be disturbed.—SALMONICERS.

VERONICA HULKEI.—Though seldom seen, this is one of the most useful plants which we possess for the spring decoration of the conservatory. Under liberal culture, it produces long, wreath-like branches that flower freely in May and June, and when associated with other flowering and ornamental-leaved plants, it is very effective. Its flowers are bright lavender in colour. Plants of it may now be seen in good condition in the greenhouse at Kew, but their branches are trained in such a way as to give them much too formal an appearance.—S.

GENISTA PRECOX SULPHUREA.—Large plants of this Genista growing on mounds and rockwork in Mr. Ware's nursery at Tottenham, now rank amongst the most attractive, hardy, flowering shrubs to be found near London. They are allowed plenty of room, and growing, as they do, equally on all sides, and being loaded with bloom, they are exceedingly effective.—C. S.

CRINUM AUGUSTUM.—A plant of this in the Pine-apple Nursery is now furnished with a remarkably strong flower-spike from 3 ft. to 4 ft. in length, which is surmounted by sixteen large Amaryllis-like flowers of a bright purple colour and powerfully scented.—S.

ANDRÉ'S ANTHURIUM.—M. E. André's fine discovery (Anthurium Andreeanum) is well figured in the last number of the "Illustration Horticole." M. André describes it as superior to the well-known Anthurium Scherzerianum, and the plate shows it to be a very distinct and beautiful plant.

A VERY MILD WINTER AND A VERY LATE SPRING.—It was reported at a recent meeting of the Edinburgh Botanical Society by Mr. McNab that vegetation in the Botanical Gardens was about three weeks behind, and that this had been the most backward spring recorded for twenty-eight years past.

POISONING BY MUSHROOMS IN FRANCE.—The neighbourhood of Agen has been placed in a state of consternation by the death of eight members of the same family through eating Mushrooms. This fatal example is a warning for those who persist in the use of Mushrooms of doubtful quality.—L. M.

BATH AND WEST OF ENGLAND ROSE SHOW.—We understand that in the horticultural department of the forthcoming Show of this Society, to be held at Bath, from the 4th to the 8th of June, two tea-guinea cups, one for amateurs and one for nurserymen respectively, will be awarded for cut blooms of Tea Roses. A jury consisting of three nurserymen will judge the amateurs' collections, and a similar number of amateurs will award the prizes as regards the nurserymen's productions.

FRUIT PROSPECTS IN SUFFOLK.—These are worse than I had anticipated. The Peach, Nectarine, and Apricot crops are quite a wreck, and early Plums and Pears are also destroyed; even Pear blossoms that seemed to have escaped are now falling in handfuls, and fruits that appeared set have turned yellow and are dropping off till hardly one remains. The Apple blossom is abnormally late, and looks paler and weaker than usual, still there is sufficient bloom for a full crop if it set well; but the wind has again shifted to the north-east, and to-day (May 23) is much colder than the weather was in April. All vegetation is wonderfully late, and the fruit prospects are as gloomy as can well be. In addition to this there threatens to be the loss of many of the trees. Owing to the mildness and wetness of the season some of the trees, notably Apricots, never seemed to go to rest properly, and several attempted to put out green leaves in winter. All such trees are now dying or dead—even those protected by glass copings and an extra supply of boughs. Most of the leaves on the Apricot trees are partially curled, and have a pale whitish appearance as if infested with mildew, and thousands of these leaves drop when touched; the leaves and young wood have, in fact, the appearance as if they had been dipped in scalding water, and it will be a difficult matter to save the trees.—D. T. F.

Ancient Names for the Holly.—I see it stated by Mr. Ellacombe, in his interesting articles on the "Plant-Lore of Shakespeare" (see p. 371), that "Hulver," the old term for Holly, is gone out of use. That is not quite the case, as the poorer classes in this neighbourhood, and I believe in the greater part of Norfolk, still use it, and there are some few who recognise it by no other name.—E. F.

CONIFER SCREENS AND THEIR USES.

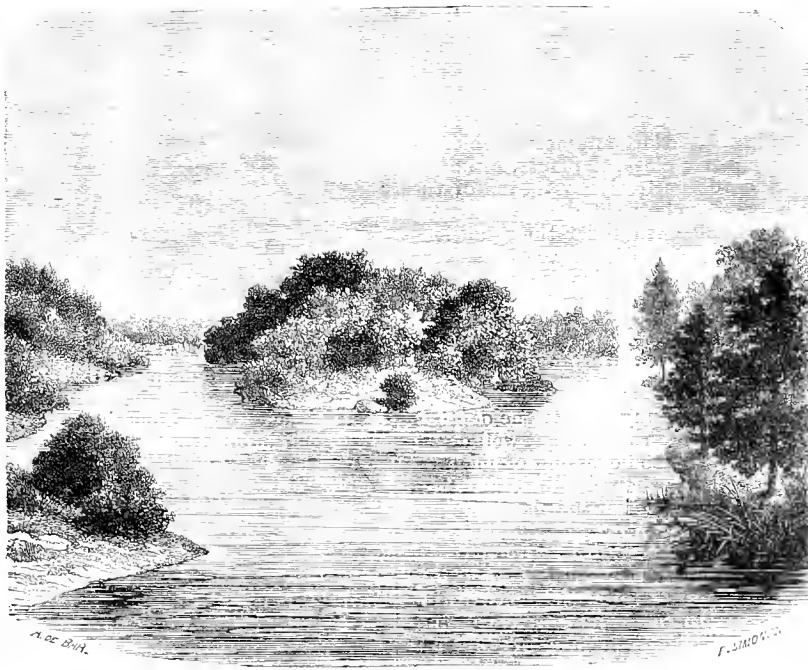
AMONGST the many ways in which Conifers may be utilised, not the least useful is that of employing them for screens. Whether the object be to shelter a comparatively large area from tempestuous and cutting winds, or whether a somewhat close, impenetrable protection be required for small subjects, there is, owing to the vast variety of growth exhibited by the Coniferous tribes, no lack of fitting subjects for such purposes. It has been recently shown in THE GARDEN how successfully evergreens may be used in the way of creating shelter, and there is no doubt that many districts, which as regards situation and soil are well adapted for fruit culture on a large scale, would be extremely valuable for that purpose, could strong gales and keen winds be warded off, or at any rate broken in force. By the selection of proper kinds of Conifers, and judiciously planting them, this result might in many cases be obtained. Thick, closely-trimmed evergreen hedges are invaluable to those who have pot plants to place out-of-doors during summer; they are in every way preferable to walls for that purpose, inasmuch as there is a constant filtration of air through them, and the surrounding atmosphere cools down quickly after the heat of the day is passed. Taking into consideration what demand there always is for protection, both in the spring, when sheltered, sunny spots are so valuable for the forwarding of many plants, and in summer, when cool, shady places are always at a premium, it is somewhat surprising that these evergreen walls are not more extensively employed than they are. One of the most efficient forms of shelter which I ever saw was a series of Thuja hedges in the form of a half circle. They were 9 ft. apart, which allowed of a 3 ft. path and 6 ft. border, and were about 7 ft. in height. They were planted to run from east to west, whilst three broad roads cut through the whole from north to south; the space thus occupied would be about a quarter of an acre. Such plants as Camellias, Azaleas, Oranges, New Holland plants, &c., here received ample protection from wind and sun, while at the same time they obtained a proper amount of light, as, owing to the disposition of the hedges, the sun shone fully at some time of the morning or afternoon on the plants set between them; it was only during the middle part of the day that sunshine was entirely shut off. A constant circulation of air, too, was maintained amongst them. Screens of this description, about 9 ft. high, running north and south, are extremely serviceable for growing such soft-wooded plants as require a maximum of light and air, but at the same time they must be protected from a scorching sun. If frames were placed on the east side, the great heat of the day would be over, as far as they were concerned, about one or two o'clock; they might then be unshaded and damped down, and thereby get the advantage of unfiltered light for some hours longer than those placed in a southern aspect could have. This is a grand advantage, especially for such plants as Primulas, Pelargoniums, &c., which have to make their growth in the latter part of the summer, and which it is absolutely necessary

to endow with a sturdy habit and robust constitution. At Mr. Anthony Waterer's, at Woking, may be seen many examples of these evergreen screens, which are extensively employed to shelter the choicer kinds of Rhododendrons and Azaleas against driving rains and tempestuous winds. These screens possess the merit of never being unsightly; in summer they are easily kept in order, and in winter they have a warm, comfortable appearance. The Thujas are probably the best adapted for this purpose, as they are robust growers and bear clipping. One of the best is *T. plicata*; it is extremely hardy, and has a somewhat peculiar overlapping habit, which gives it a neat appearance. *T. occidentalis* I have seen much used; also *T. Lobbi*, which is a quick grower, but I do not know if it is in other respects well adapted for a screen. It is essential that the kinds used for such a purpose should be very hardy, robust growers, and not liable to get naked at the bottom.

Bylect.

JOHN CORNHILL.

Our Woodland Flowers.—May is perhaps the richest month of the year as regards woodland or wild flowers, and, let the season be what it may, they never fail. Suffolk is especially well favoured in this respect by Nature, for every coppice or dell has some peculiar feature of native wealth peculiar to itself, the most abundant displays being in districts in which the forest consists of deciduous trees, such as Oak and Ash, at sufficient intervals apart to allow the underwood to freely develop its growth. In such positions both shelter and shade are afforded, and consequently a protracted and effective floral display is the result. The Primroses are not yet faded, but are almost overgrown by Oxlips, Cowslips, wood Violets and wild Strawberries, Orchises, white and red Dead Nettles, Catchflies, and a host of other subjects; while the foliage of Arums, Burdocks, and huge Thistles suggests a sub-tropical accompaniment. If any low-lying marshy portions of the



Artificial Lake and Islands.

woodlands be visited, beds of wild Hyaciaths, mingled with gorgeous clumps of *Caltha palustris*, or Marsh Marigold, intermingled with Reeds, Rushes, and wild Grasses, form such a display that quite upsets our orthodox notions of spring gardening. No violent or sudden transitions are observable in Nature's gardens. Where, however, the fashionable style of decoration is carried out, there is no help for it but to remove Pansies and other lovely spring flowers just as they are approaching their best to make room for the next course, while they are, in gardening phrase, laid in by the heels, and wasting both beauty and fragrance on the desert air of shrubby recesses or back borders, until again required for spring work.—J. GROOM, Henham.

Needless Structures in Picturesque Garden Scenery.

—The accompanying scene represents one which has considerable beauty, but which is partially marred by a miserable kiosk impudently placed on the brow of the prettily-planted island. This is essentially an engineering and architect's notion. Given a lovely scene, and there is no good excuse for making an important building on an unfrequented islet. But something can be done—a kiosk! Accordingly the very central object in this beautiful garden scene, made with painful care and not without happy results, is a structure midway between a pigeon-box and a small pagoda. There are, how-

ever, so many trumpery buildings in the world, that it is hardly worth while adding to them in scenes formed for beauty and for rest. We have taken the liberty of omitting the kiosk from our sketch.

OUTDOOR CHRYSANTHEMUMS.

MANY who have been in the habit of blooming Chrysanthemums under glass entertain doubts as to the practicability of obtaining fair-sized blooms for exhibition purposes out-of-doors, but I hope to be able to set all doubts as respects this matter at rest. At the Woolwich Chrysanthemum Show classes are set apart for outdoor culture (*i.e.*, for members who have no glass structures), and there are also classes for those who possess glass structures. Mr. Marshall, a painstaking outdoor Chrysanthemum grower, has, however, for these last two or three years competed with those who have glass, and at the exhibition of 1876 (notwithstanding the disadvantages under which he laboured) he secured two first prizes in the classes in which he showed, and that notwithstanding there was a severe competition. This I merely quote to show that the obtaining of exhibition blooms out-of-doors is perfectly practicable, and, furthermore, that it does not entail so much labour in potting, watering, &c., as in the case of indoor plants; I am, nevertheless, fully alive to the disadvantages that attend outdoor Chrysanthemum culture: the blooms should not be allowed to get wet, or drip to fall upon them, as their appearance is materially depreciated thereby. I do not recommend dwarf specimens to be flowered out-of-doors, as some kind of glass structure is necessary to bring out the large numbers of blooms that are produced by this particular class of plants, although it is possible to flower standards perfectly by means of the aid of a canvas covering only. The best standard Pompones, indeed, which I ever grew were bloomed under the conditions just named, and notwithstanding the occurrence of a very severe frost that year, I obtained a first prize for six, a fact which alone suffices to dispose of the impracticability, often urged, of getting good blooms out-of-doors.

Preparation of the Ground and Planting.

Having selected the spot upon which it is intended to grow the plants, the ground should be well dug over to the depth of at least 16 in., in order to enable the roots to get well down, and thereby avoid drought. Give a good dressing of manure, not too rotten, working it well in when digging, and then tread the whole firmly to avoid sinking after the plants are put out. Mark out the ground in double rows, leaving between the rows a space of at least 2 ft., to afford a free passage between them. This will facilitate the operations of tying and disbudbing, &c., and will enable the grower the more readily to secure earwigs and slugs, both of which are very fond of Chrysanthemums, and must be kept in check by constant watching and trapping. Draw out the soil in the double rows to about 6 in. in depth, and after a good watering and the settling down, proceed to plant about 12 in. or 18 in. apart, the latter being preferable, taking care to have the dwarfest in front and the tallest at the back. Where the plants have to be purchased, the relative heights of the different varieties may be obtained from the dealer. A good stout stake should be attached to each plant, which must be allowed to grow without check, with the exception of Pompones, which may be stopped once or twice during the summer. Water them frequently both night and morning with a watering-pot, fairly washing them from head to foot, and after August frequent doses of liquid manure may be given with advantage; they should be disbudded in the usual manner, and after that has been done the use of clear water must be discontinued, and liquid manure given at every watering; in fact, at this stage little water need be given, the rains that usually fall in autumn affording sufficient moisture, and as the roots will be rising to the surface of the ground, a top-dressing consisting of equal parts loam and manure should be given to the depth of 6 in. thus bringing the beds level with the path. About the first week in October a few small sticks may be placed between the supports, to which the blooms may be tied down to a level, or rather sloping from the back to the front, covering the whole with calico or canvas, and allowing it to drop 1 ft. or 2 ft. below the blooms at front and back, in order to keep them in

good condition. If these instructions be carried out, a fine display will be the result.

Varieties.

LARGE-FLOWERED.—The following are a few of the very best for outdoor planting, viz.:—Aimée Ferrière, Antonelli, Auguste Mic, aureum multiflorum, Belladonna, Beverley, Cherub, Christine, Countess of Granville, Dr. Sharp, Duchess of Roxburgh, Eve, Faust, Fingal, General Slade, Golden Beverley, Golden Christine, Guernsey Nugget, Hermione, Julie Lagravere, Lady Slade, Mr. Evans or Oliver Cromwell, Mr. George Glenny, Mrs. George Rundle, Mrs. Sharpe, Orange Annie Salter, Pink Christine, Prince of Wales, Progne, Prometheus, Sparkler, Venus, and White Venus.

ANEMONE-FLOWERED.—Fleur de Marie, Gluck, King of Anemones, Mr. Cole, Prince of Anemones, Princess Louise, Antonius, Astarte, Madame Montels, Miss Nightingale, Mr. Astie, Perle, Regulus, and Stella.

POMPONE.—Annie Forsyth, Bob, Cedo Nulli (lilac, golden and white), Dipellon, Fanny, Flambeau, Hélène, La Vogue, Lilliputienne, Louisa, Madlle. Marthe, Mrs. Dix, St. Michael, and Souvenir de Jersey.

I have omitted all mention of the Japanese varieties, as they are unsuited for outdoor purposes. The names, too, of many of the finest and largest exhibition sorts are absent from the list because they do not grow well when treated in the manner described; planting them would therefore be simply a waste of time and expense, and end in disappointment.

Plumstead Common.

F. T. DAVIS.

Hardy Clematises and their Uses.—Few plants are capable of being used in so many ways as Clematises. They may either be employed for furnishing walls and pillars out-of-doors or in cool conservatories; for overrunning tree stumps and shrubs; for bedding purposes, they are admirably adapted, and when well grown they furnish a mass of gay flowers for months during summer. In order to induce Clematises to produce a long succession of bloom, liberal culture is necessary—indeed indispensable; for, unless a vigorous growth in the plants is secured, they will flower but sparingly. A deep, well-drained soil consisting of good, friable loam, rotten manure, and leaf-mould, is the best compost in which to plant them, and during very dry weather liberal supplies of weak manure-water may be given them with advantage. Although the choicer kinds are usually increased by grafting, if cuttings of the young shoots be taken off in spring and inserted in a gentle bottom-heat under a hand-glass, they will form good flowering plants under favourable circumstances the following season.—S.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Orchis pallens.—This pretty pale yellow Orchid has been in beautiful bloom for the last three weeks planted out in a cold pit; *O. insectiflora*, *Serapias Linza*, and *Freesia Leichtliniana* are also in bloom under similar conditions.—H. HARPER CREWE.

Birds'-claw Violet (*Viola pedata*).—This pretty Violet begins to bloom now, and continues to do so for a long period. For several years I vainly endeavoured to flower a coarse-growing spurious variety of it that had been received as the true kind. *V. pedata* proper is small, the leafstalks short, and the leaves finely cut, hence the designation Bird's-claw. The flowers are of a bluish mauve colour, and in form intermediate between the Violet and Pansy. They are borne in great profusion, and no Alpine garden should be without this mountain gem.—A. D.

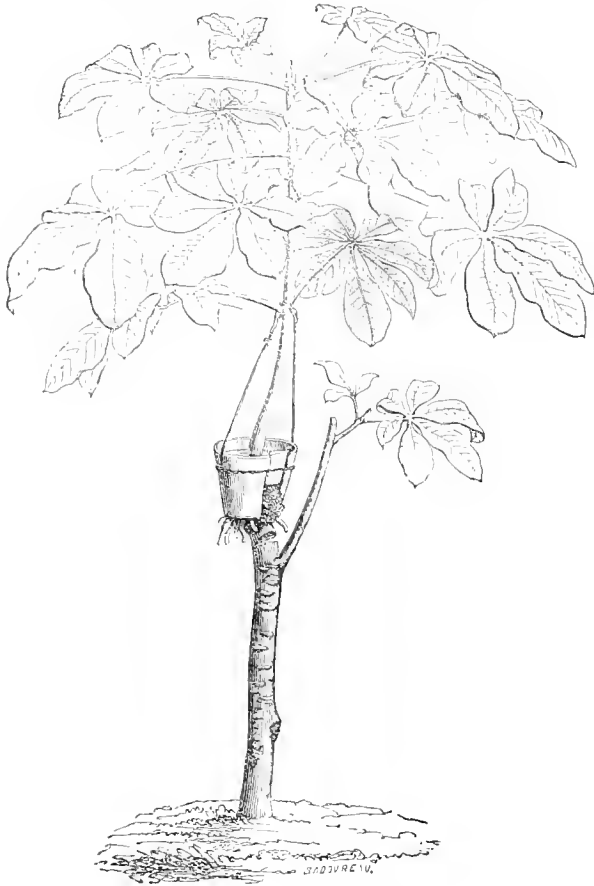
Effect of the Winter on White Lilies.—It is discouraging to find that, owing to the unusually wet winter which we have had, large beds filled with plants of the common White Lily, which looked healthy at Christmas, have been so much injured by wet since that few of them will flower this season. This is at least the case near London; a large grower of this old-fashioned Lily showed me the other day beds, which he had expected would yield £10 worth of cut bloom, completely rotten and worthless.—S.

Cobæa scandens a good Balcony Climber.—This is one of the best plants that can be used during summer and autumn for the decoration of balconies; or for training round window-sills or on porches. It grows rapidly and flowers freely in warm weather, and a little cold does not injure it. Cuttings of it put in now and kept in gentle heat for a few weeks will strike root readily and make good plants for turning out-of-doors early in June. They should, of course, be well hardened off previously to being exposed, and if planted in well-drained, rich, sandy soil, they succeed well even in London.—S.

Andromeda Leucothoe fl.-pl. for Vases.—This beautiful spring-flowering North American shrub does not appear to be nearly so commonly in use about London as its beauty and adaptability for furnishing vases, balconies, window sills, &c., would lead one to expect. Neat little plants, 1 ft. high and as much through, are easily obtained, and when laden with their creamy-white, bell-like blooms, would be far more appreciated than the many wretched specimens of Aucubas and other shrubs commonly seen in and around London.—W. S.

CHINESE MODE OF PROPAGATING ARALIAS.

The mode of propagation, of which the annexed cut is an illustration, is one of great antiquity, it having been employed by both Chinese and Indian cultivators from time immemorial, a joint of a Bamboo stem or a bag of wet earth and Moss being substituted for the flower-pot. This plan of propagation is peculiarly well adapted for tall-growing Aralias or Dracenas, which, having lost their lower leaves, have become unsightly. The process consists in fitting the two halves of a flower-pot around the base of the young stem just below the leaves, at which point the bark may be slit with a knife or otherwise abraded so as to induce a "callus," which precedes the protrusion of young roots. The pot is then filled with moist soil or soil and wet Moss, and in some cases the old stem is partially



Old-fashioned plan of propagating Aralias.

severed just below the pot, as shown in the engraving, which represents the digitate-leaved *Aralia pulchra*, one of the most distinct and effective of all half-hardy, evergreen, fine-leaved plants. B.

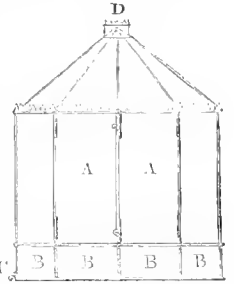
Hybrid Narcissi.—The late Dean Herbert clearly showed that many of the so-called species of Narcissus were in reality cultural hybrids, and Dr. Henon, who especially studied the French species of Narcissi, pointed out as long ago as 1840, that in a meadow at Lattes, near Montpellier, might be seen natural hybrids between *N. poeticus* and *N. tazetta* passing through *N. biflorus* without any appreciable line of demarcation. By crossing *N. poeticus* and *N. pseudo-Narcissus* Dean Herbert produced a plant nearly identical with *N. incomparabilis*, and experiments conducted by himself and Mr. Trevor Alcock proved *N. adonis* to be a hybrid between *N. pseudo-Narcissus* and *N. jonquilla*. Among other seedlings raised by Herbert were hybrids between *N. poeticus* and *N. pseudo-Narcissus minor*; *N. poeticus* and *N. montanus*; and *Tazetta* (var. "Staten general") and *N. pseudo-Narcissus*. Mr. Leeds, of Longford Bridge, Manchester, has also raised some beautiful hybrid kinds, and of these some of the most distinct and interesting were exhibited at a recent meeting at South Kensington, where they attracted much attention.—B.

THE INDOOR GARDEN.

FILMY FERNS IN PLANT CASES.

SOME account of the mode of treatment under which these Ferns thrive with me in cases may not be unwelcome to your readers. The compost which I use consists of charcoal, freestone or sandstone, old mortar, the best Orchid peat and silver sand, all used in a rough state. Good drainage is indispensable. Water is given sparingly during autumn and winter, but as soon as signs of fresh growth make their appearance, the plants are watered overhead every morning through a fine rose; on summer evenings they are gently syringed. The doors of the cases are left ajar after watering for a time to allow a circulation of air among the plants, the top of the case being always open. The temperature of the case is that of a greenhouse with a northern aspect. The Ferns are planted on a slight mound in the centre of the case, and a thick covering of fresh Sphagnum grows over the compost. As will be seen by the annexed sketch, the shape of the case is octagonal, with a pyramidal top terminating in a circle. A A are folding doors, B receptacle for drainage and compost, C outlet for water, D top ventilator. Plants of *Todea superba* and *T. pellucida* in 3-in. pots when bought seven years ago were planted in this case; the first is now making fresh growth, the old fronds are 21 in. in length, and the plant measures in width 3 ft. 6 in. *T. pellucida* is 6 ft. across and has fronds slightly over 3 ft. in length; the Killarney Fern, of which there is a large mass, has fronds 15 in. in length. I have also a patch of *Hymenophyllum tunbridgense* thriving remarkably well. Any one following the mode of culture just alluded to will have no cause for regret as regards want of success.

Fitroy Park, Highgate.



R. B. FULLER.

Forced Sweet Brier.—In the open air Sweet Brier generally presents a harsh, rusty appearance, until new growth has made some progress in June; but it is one of the easiest plants imaginable to force in pots, and as it is not so liable to the attacks of insects as other kinds of Roses, it may be brought forward in quantity in Peach-houses without incurring much risk or adding much to labour or expense in the way of fumigating. Early in the season, when flowers are scarce, a quantity of fresh young shoots of Sweet Brier as a base or cushion on which to arrange them will be found of great advantage, especially for setting up short-stalked flowers. Plants of the Sweet Brier are usually plentiful enough in the hedgerows in strong soils, and may easily be identified, even when leafless, by the abundance of their spines. Autumn is the best time in which to obtain them, although they may be lifted and potted at any other period, even in summer, if there be the means of keeping them close and shaded until they have become established. Of course the head would require to be cut back into shape in order to balance the untitled roots. Plants of Sweet Brier may also be raised from seeds or cuttings.—E. HODDAY.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Dactylis elegantissima.—This though hardy is a desirable Grass for vases or conservatory decoration. Its leaves are produced in an abundant and graceful manner, and being of a rich golden colour with bright green stripes, they are, when produced by a healthy well grown plant, highly effective.—S.

White Lilacs without Darkness.—Recent experiences go to prove that white Lilacs may be produced in a warm house not darkened, as has been the custom. The heat is supposed to bring out the flowers too quickly for the reddish pigment to be developed. We have recently seen a beautiful Lilac flowering in M. Carrière's house, and which had not been submitted to a higher temperature than that of an ordinary living room.

Vanilla aromatica.—A plant of this in Mr. Terry's collection of Orchids at Peterborough House, Fulham, bore about 100 pods of fruit last season, and of these many were much larger than those that are imported from the East Indies. The Vanilla grows best in a fresh open compost of turfy loam, nodules of peat and freshly-burnt charcoal, sandstone grit, and living Sphagnum Moss. A gentle bottom-heat of 75° or 80° below the pots induces a most vigorous growth, and weak liquid manure may be given once a week with advantage.—B.

Mikania scandens variegata.—This variegated form of the well-known German Ivy is well worth cultivation for covering walls or training up pillars in conservatories, or for overhanging edges of vases. As an indoor plant, too, it will be found very valuable, either as edgings for window boxes or as a pot plant. Its bright, glossy, green and yellow leaves render it very effective, and it is easily kept clear of dust. It is grown in the Pine-apple Nursery for furnishing, a purpose for which it is considered to be well adapted.—S.

THE LIBRARY.

GARDEN RECEIPTS.*

THIS is the complete collection of garden receipts gathered together with great care for THE GARDEN by Mr. Quin. All familiar with a garden know that one of the chief cares therein is combating the various insects and other pests that infest it. Without clear knowledge and continued attention in this way much of the labour and expense devoted to the garden will be thrown away. The object of this book is the collection, in a handy form, of information on this and other topics embraced under the general heading of "Garden Receipts." Great pains have been taken to make the collection in every way as complete as possible. A variety that are sometimes given for one purpose, is justified by the fact that one remedy easily applied in a given district may be too expensive in another; and by the extreme difficulty of getting rid of many of the pests alluded to in these pages. The glossary of the materials used is made a special feature, and is as complete as possible. Although the arrangement of both the receipts and glossary is alphabetical, a copious index has been added to facilitate reference. It is the most useful book for the garden that has been published for some time, being convenient in size, easy of reference, and full of information brought down to recent times. Every one practically interested in horticulture should have it, if only for the sake of saving time in asking questions and in making references.

VAN HOUTTE'S "FLORE DES SERRES."

AFTER an interval of more than a year, caused doubtless by the death of the distinguished editor and head of the firm, the first quarter of the twenty-second volume of this beautifully illustrated horticultural work has at length reached us. The new editor is M. J. E. Planchon, Professor of Botany at Montpellier, and the illustration of the work quite equals that of former volumes. The parts now before us contain beautifully-executed double plates of *Pritchardia pacifica*, one of the beautiful fan-leaved Palms; *Alsophila glauca* (Seemann) or *contaminans* (Wallich), also known as *Chnoophora glauca*, *Cyathea glauca*, and *Polypodium contaminans*, a magnificent Tree Fern from the Indian Archipelago; *Lilium neilgherriicum*, from India; *Bolbophyllum Pahudi*, an extraordinary-looking Orchid from Java, also known as *Cirrhopetalum Pahudi* (De Vriese); the fringed *Pelargonium Captain Raikes*; the variegated stove fine-foliaged plant *Ficus Parcelli*; the white-flowered stove Amaryllid *Hymenocallis adnata* or *litoralis*; the beautiful hybrid Slipper-plant *Cypripedium eurynardum* reproduced from the "Floral Magazine," where it was figured in November, 1875, under the designation of *C. hybridum*; the hybrid hardy *Rhododendron Hippolyte Vande Woestyne*, a seedling of the establishment; the fine, double white, fringed-petaled Indian *Azalea*, raised by Herr Schulz, and named by him *imbricata*; and *Coleus Duchess of Edinburgh*; also single plates of *Ixiolirion Pallasii*, an exceedingly pretty hardy bulb with blue flowers, from Turkestan; *Habranthus hesperus*, an ornamental, deep red-flowered Amaryllid from Chili; the handsome *Iris* from China and Japan, known as *I. tectorum*, or *tomiolopha*, or *cristata*, with large, deep blue flowers; the fine, dark, Hybrid Perpetual Rose *Senateur Reveil* (Damaizin); and the Brazilian Orchid *Cattleya Schilleriana*, called also by some authorities *Epidendrum Schillerianum*; in all, eleven double and five single plates, very good value for what the numbers cost.

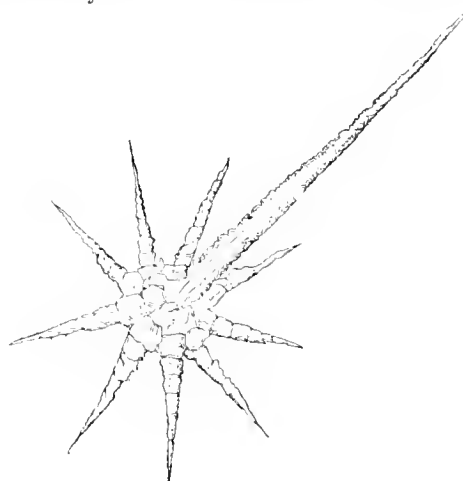
W. E. G.

A Derbyshire Clergyman on Vegetable Diet.—Speaking at a vegetable banquet at Leeds the other day, the Rev. C. H. Collins, of Wirksworth, Derbyshire, said he was descended from a long line of gouty ancestors, and he owed to vegetarian diet a new lease of life. He had also been a sufferer from gout, but he had driven it out of his body entirely by pure and wholesome living. Having become more than ten years ago a total abstainer, and having not long afterwards become a vegetarian, he had gradually driven the gout out, and could give no other reason for it except total abstinence from alcoholic liquors, and total abstinence from flesh meat. He considered that the teeth of man showed that he was not carnivorous but frugivorous, and he claimed for the vegetarians that they were acting according to the laws of Nature. The stomach, he contended, also showed that it was intended not to receive flesh but the fruits of the earth. He would not go back to his former mode of life for anything that could be given him. They knew that vegetarian diet agreed with the delicate as well as the robust, and that it was a wholesome and enjoyable mode of life.

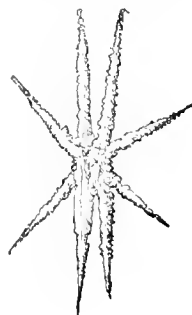
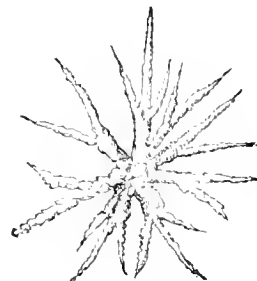
* "Garden Receipts." By C. W. Quin. London: Macmillan & Co.

STAR-LIKE HAIRS ON PLANTS.

It is generally known that the stems of herbaceous plants, and particularly the leaves, are often covered more or less thickly with long or short hairs of a softer or harder consistency. Sometimes these hairs are isolated, straight, and pointed like a needle; sometimes they become ramified, and resemble a stem with its branches; others coming from a common centre and following as nearly as possible in the same direction, form a brush; others again, stretching themselves out in opposite directions, form a star. These are particularly curious and often beautiful to observe. In the fine herbaceous plant with yellow flowers called *Onosma tauricum*, these

Fig. 1.—Hair of *Onosma tauricum*.

hairs are visible to the naked eye, especially those on the lower sides of the leaves, but the use of the microscope is necessary to reveal all the beauty of them. When they are examined through the aid of this instrument, it is surprising to see their transparency as if composed of the purest crystal—one might call them diamond stars. At the base of each branch of the star is remarked a white protuberance, slightly opaque, and the branches themselves are formed of irregular stumps gradually becoming smaller and terminating in sharp points; the one in the centre being much longer than the others, and

Fig. 2.—Hair of *Alyssum alpestre*.Fig. 3.—Hair of *Alyssum montanum*.

holding itself perpendicularly on the surface of the leaf. This star is represented by fig. 1. Fig. 2. gives us a good idea of the star hairs found on the leaves of *Alyssum alpestre* (the Golden Basket). In it the small star is stretched out, while it retains a regular form. The branches are knotty and of a crystalline appearance, the same as in *Onosma tauricum*. These hairs give the leaf a silvery and velvety appearance. The hairs of *Alyssum montanum*, although at first sight resembling the preceding ones, are very different when seen under the microscope. The star is composed of eight arms; these are again divided into two or three branches, which render it irregular and tufted. In another variety, *Alyssum spinosum*, the hairs are much shorter, thicker, and the rays far more numerous. L. M.

Fig. 4.—Hair of *Alyssum spinosum*.

TREES AND SHRUBS.

THE YEWS.

By GEORGE GORDON, A.L.S., Author of "The Pinetum."

The Common Yew (*Taxus baccata*).—There are great numbers of varieties of the Common Yew, some with green leaves, some with variegated ones, and others with erect branches and with prostrate ones. The most striking of the green-leaved varieties are the Irish, the Dovaston, and the Yellow-berried, and of the variegated kinds, elegantissima, Barroni, and the varieties of the Irish and Dovaston. The Golden Yew grafted on the Irish one has a fine appearance in a mixed shrubby border, into which it infuses a little colour at a season when it is most wanted.

The Adressed Yew (*Taxus adpressa*).—This forms a very distinct plant with short, adressed leaves, numerous, much divided branchlets. It is a low, dense bush, 5 ft. or 6 ft. high, and is a native of the mountains of Japan.

The Indian or Assam Yew (*Taxus Wallichiana*).—This kind, according to Major Madden, in his "Observations on the Coniferous Plants of Northern India," is very common in the British Himalayas, Nepal, Sikkim, and Cashmere, and is found at from 8000 feet to 10,000 ft. It forms beautiful forests and attains a large size, sometimes 15 ft. in girth, furnished with numerous twiggy branchlets, and leaves very similar to those of the Common Yew. Dr. Royle says that in Kamaon Tea is made from the leaves and young shoots, which are gathered from July to October, and after infusion in hot water are rubbed over with a thin solution of gum and dried in the sun; the first infusion is reddish and reckoned heady, but the second which is used is yellowish-green. He also says that the leaves are exported to the plains, where they are much used in native medicine. It is the *Taxus virgata* of Dr. Wallich, and called "Dheyri" in Nepal, where the green branches are used to adorn houses during certain festivals; the decoction of it is freely drunk at Simla, and called "Singcha," as a remedy for rheumatism. It is quite hardy.

The Canadian Yew (*Taxus canadensis*).—This is a low-spreading bush, having leaves of a brownish hne. It is a native of Canada, Maryland, and the Rocky Mountains, in shady places.

The Western Yew (*Taxus brevifolia*).—This forms a tree 30 ft. or 40 ft. high, with a stem which frequently girths 4 ft. or 5 ft. It is a native of N. California, where it is found growing on the sides of glens under the shade of large trees. It differs but slightly in appearance from the Common Yew.

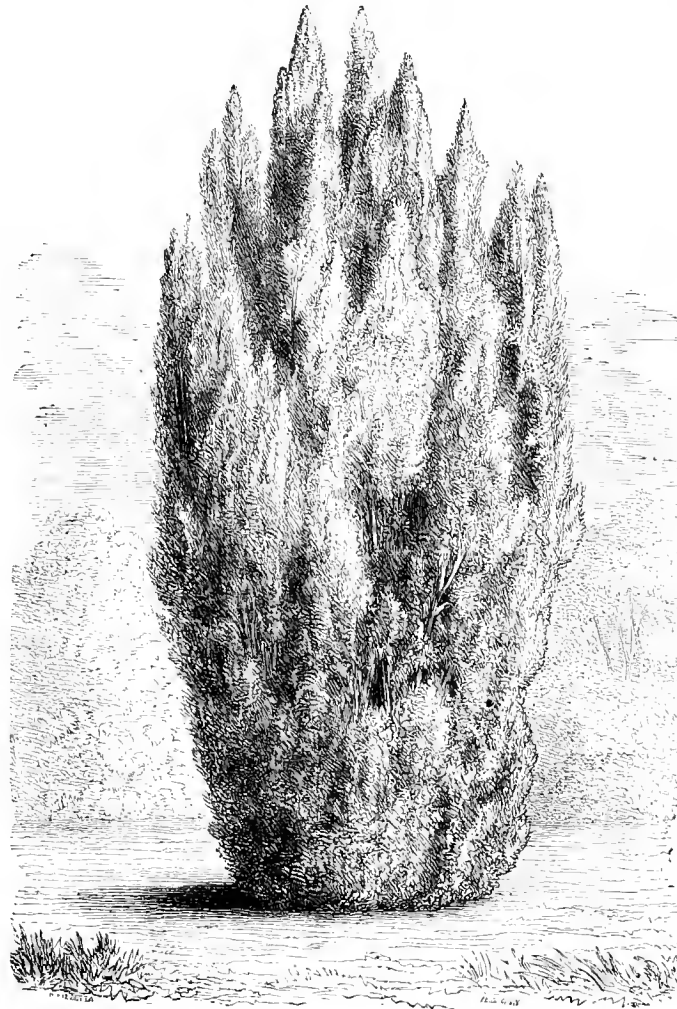
The Cuspidate-leaved Yew (*Taxus cuspidata*).—This forms a large bush, densely clothed with somewhat ascending branches and dark green leaves. It is a native of Japan, where it grows from 15 ft. to 20 ft. high.

Black Italian Poplar (*Populus monilifera*)—This is well known to be one of our fastest-growing forest trees, the timber of which is much used in constructive work, where toughness and moderate elasticity combined are required. The tree is a native of North

America, and is said to have been first brought into Italy, and thence to Britain; hence the common name "Black Italian Poplar." It was first introduced into this country from Canada in 1772, and London, in writing of it some half-a-century ago, says:—"Its rate of growth in the climate of London, in good soil, is between 30 ft. and 40 ft. in seven years, and in Scotland it has attained the height of 70 ft. in sixteen years." Such rapid growth it is not likely to make in all cases, but there is a growing knowledge of the usefulness of the timber and the profitableness of the tree as a forest crop, and we have every confidence in recommending it to the attention of planters as a most valuable tree where the soil and climate are suitable to its nature. In corroboration of our opinion we have much pleasure in quoting the following letter from Mr. McLaren, forester to the Earl of Hopetoun. He says:—"A Black Italian Poplar, containing 80 cubic ft. timber, was cut down last December. It was planted in 1824, in a

mixed plantation of Ash, Elm, Oak, Maple, Poplar, Larch, and Scotch Fir; and after being cut down was sold at our public sale for £8 12s. 6d., being more than double the price received for any of the other kinds at the same age; the Larch approached nearest to it in size and the price per tree which it brought. It may be said that the soil suitable to the free growth of the Poplar does not suit the other sorts, but while it was planted in a damp spot peculiar to its healthy growth, the others were planted upon higher and drier ground, more congenial to their nature, so that they were upon equal terms in that respect. Another thing in favour of the Black Italian Poplar is, that from its upright habit of growth it can afford to stand closer upon the ground than any other common hardwood tree, and it requires little or no pruning, naturally forming a straight and clean pole. It would be no great stretch of imagination to suppose that a Scotch acre would produce seventy trees worth £5 each in fifty years, which would yield a rental of £7 per acre per annum for that period, the thinnings and periodical cuttings having already paid the cost of planting and management. Many of the Poplars are beautiful trees as regards colour in autumn—more beautiful even than the Mountain Ash. In the case of the White Poplar, for example, half of the foliage is often a fine yellow while the rest shows all manner of weaker tints of that and other colours, and the same holds good in reference to other kinds. In addition to their beauty, Poplars make excellent

screens for the windy sides of gardens.—"Journal of Forestry."



Upright or Irish Yew.

NOTES AND QUESTIONS ON TREES AND SHRUBS.

Best Time for Clipping Ivy.—I had my Ivy on the house clipped about the middle of April. This is too late, as the young shoots are too strong to allow of its being brushed after clipping, a necessary operation on account of the dirt and dead leaves. My experience is, clip Ivy if you wish to keep it clean in March.—J. H.

Variiegated Japanese Honeysuckle and its Uses.—In addition to the ways of employing this Honeysuckle enumerated by "R. M." (see p. 329), allow me to say that it also makes a grand bush for lawn planting; of course it should be kept clipped, or pinched in so as to induce compact growth. I have in my mind's eye a splendid bush of it which is growing on the lawn in the late Canon Kingsley's garden, of which you give an illustration on p. 91 of the present vol. of THE GARDEN. In the picture the plant is shown on the right of the open door of the late Canon's study.—W. W. H.

THE FRUIT GARDEN.

GUMMING IN PEACH TREES.

THIS disease affects other stone fruits besides the Peach, but it is most to be dreaded in the case of the latter. Fortunately, it does not occur very frequently; but under some circumstances it is very troublesome and difficult to contend with. I have known trees to be quite ruined by it. As has been stated by others who have written upon the subject, when gumming affects Peaches to a serious extent there is no cure for it—prevention is the best plan. Gum is described as extravasated sap, or sap forced out of its proper channels. In the Peach it appears in small sticky lumps or globules, both upon the young and the old wood, oozing through cracks or wounds in the bark, and very often when a shoot has been cut back, particularly if it have been strong and ill-ripened. When the gumming continues, the wood decays, and very frequently the branch dies off altogether. In cases where the disease appears to originate spontaneously, as it sometimes does, appearing in different parts of the tree at the same time, ill-ripened wood and pruning combined are usually the cause. At first nothing appears to be wrong; but, after growth commences, the gum will be found exuding just where the cut was made, and particularly on those shoots which have not been shortened back close to a bud. In such cases the wood above the bud dies back to that point, and the gumming begins at the junction of the dead and living tissues, and if not arrested will extend down the limb, and sometimes kill it. Indeed, the gumming sometimes begins a considerable distance below the cut, causing the young shoots to break weakly; and the best plan then is to cut still further back to where the wood appears to be sound and the young growths healthy. In trees predisposed to the disease the least injury will produce it—such as too tight a tie, a scratch with the knife, or an abrasion of the bark from any cause. I have known two-year-old wood to die off through gumming brought on simply by contact with the wire. Galvanised wire trellises have been known to produce gumming in an aggravated form on trees grown out-of-doors, and a number of instances have been recorded. A case of that kind occurred some years ago that is worth referring to. Four Peach and Nectarines trees, on which gumming had not been observed before, were removed to a warmer wall, and trained to a galvanised wire trellis. They were pruned in February and tied loosely to the wires, and nothing was observed to be amiss with them till rather late in the season, when it was found that gumming had broken out on the whole of the trees at those places where the shoots touched the wires. The latter had killed the bark and wood where they came in contact with them, and gumming was the consequence. Be that as it may, the disease was very destructive, and crippled the trees seriously; but it did not extend much after a wooden trellis was substituted for the wire one. In another case the gumming was clearly traceable to an ill-ripened condition of the wood. The second year after planting, a vigorous-growing Royal George Peach in the Peach-house began gumming where the maiden shoot had been pruned, beginning first at the cut, and going down one side of the branch. The wood was not as well ripened when planted as could have been desired, and some time afterwards I noticed that the wood was black and discoloured round the pith of the limb in question. The decay extended towards the outside, and there the gumming appeared. Being anxious to save the limb, I cut away all the diseased side nearly into the pith, but could not get out all the black heart without cutting the limb nearly through. The consequence was that the gumming appeared the next year, and the next, as bad as ever. By this time the branch was a good size, and formed a main portion of the tree, for, although it was weaker than the other branches, it continued to grow pretty freely. As a last resource, therefore, I took a joiner's small gouge, and, after cutting off the external gummy portions, I bored the black and decayed heart-wood out, and then filled the whole, which was about 3 in. deep, with white lead. After that the gumming ceased, and the branch is still alive and healthy; but though the operation was performed ten years ago, the effects of the gumming are still noticeable. And now as regards prevention and cure: the latter, as has

been hinted, is out of the question in bad cases; but when only one or two shoots are affected, cure is not to be despaired of, and the best plan is either to remove the diseased shoot altogether, or the diseased part, as soon as it is observed, and to encourage new growth so as to provide an outlet for the sap. When the disease affects the trees generally, and seems to be constitutional, the only plan is to lift the trees and replant in a not over-rich and rather hard soil, which will restrain exuberant growth; and if at the same time the trees be trained thinly, it will contribute towards the same end, and the better ripening of the wood. Pruning, in outside trees at least, should be deferred till February, and the shoots be cut back to where the wood is mature, as will be indicated by the forwardness and plumpness of the buds; but later in the season the trees should be looked over again, and the weakly and suspicious-looking shoots removed. In training, the utmost care should be exercised, to prevent injury to the bark by tying the shoots in too tightly, or bruising them with the hammer or nails. Neither is it advisable to tie the young growths in too soon, but better to let them grow out from the wall, till they are 12 in. or 13 in. long, and then one tie about the middle will suffice to hold them in their place; the growing point should always have freedom. At the same time tying in should not be delayed till the summer is on the wane, otherwise the ripening process will be retarded, and the evil encouraged that it is sought to prevent.

S. W.

SERPENTINE WALLS AND FRUIT CROPS.

ALTHOUGH these are not likely to supersede straight walls, there are some exceptional situations where a waved or serpentine wall would be decidedly preferable to a straight uniform line of brickwork, for when the kitchen garden is bounded by, or in conjunction with, the pleasure grounds, a wall of this description may be much more easily disguised or screened than if straight. Most of our walls on the outskirts of shrubberies here are built in this way, and although exposed to the full force of our strong easterly gales, they offer such a strong resistance owing to their shape, that 9-in. brickwork, without any strengthening or support in the way of piers or buttresses, is apparently immovable, even when carried to the height of 12 ft. They are for the most part overgrown with the common English Ivy, which is annually laden with berries, and which looks far better than when clipped in close; moreover, as great quantities of the best berried pieces are cut out for Christmas and other decorations, the remainder never gets top-heavy or breaks down. We have a long wall built in this form 12 ft. high with an east and west aspect, entirely devoted to Pears trained horizontally, and as the recesses offer a gradual curve of 30 ft. one tree is planted in each, giving 15 ft. each way for the branches to extend, and as they meet on the most prominent part of each projecting portion of the curves, a very interesting way of breaking the monotony of a fruit wall is to plant a Rose or any climbing plant against this portion and train it up as a single cordon to the wall, allowing the annual growths to extend in a natural manner. These prominent points treated in this way entirely alter the character of the ordinary aspect of fruit walls. The serpentine form of walls is not only well adapted for withstanding the effects of strong gales of wind, but the recesses offer a considerable amount of shelter to the trees growing on them, as the current of air cannot sweep so uninterruptedly along the face of them as along a straight line. The curves may be more or less sharp according to the purpose which they are intended to serve, but if used for fruit trees, a very gradual curve is the most desirable; ours deviate from the straight line about 1 ft. 6 in., giving a curve of 3 ft. between the two extremes. The principal objection to this kind of wall is that copings or roller blinds cannot advantageously be employed for the protection of tender blossoms during the critical stages of flowering, when spring frosts are both prevalent and destructive; but as the earliest-flowering of our fruits, such as Peaches and Apricots, are usually grown on south aspects, there is no lack of wall trees that flower at a later period for which the wall itself should prove an efficient protector, if the bearing wood be trained close enough for the blossoms to receive at night the benefit of the latent heat absorbed by the

brickwork during the day, and where it is desirable a temporary protection in the form of fish nets, tiffany, evergreen branches, &c., can be as readily fixed on this kind of wall as in the case of any ordinary straight one.—J. GROOM, *Ilchenham*.

DEVELOPMENT OF THE AMERICAN FRUIT SUPPLY.

For over a quarter of a century American Apples have been exported to this country, although not in large quantities. The great obstacle to the trade was the difficulty in the ocean transportation. Fruit that would keep well in America for many months would, it was found, rapidly deteriorate when barrelled and stowed away in the hold of a steamer, even during a short voyage across the Atlantic. The only variety that possessed the necessary keeping quality was the Newtown Pippin; but, as this Apple was expensive, and in some years inferior in quality, comparatively small shipments were made of it. Experiments were, however, successfully made with other varieties, such as Greenings, Baldwins, Spitzenbergs, and a few others, and shipments of them were more or less financially successful. Still, the total amount of the trade for six years previous to 1875 was comparatively small. In that year, however, our crop of Apples was a failure, while those of the United States and Canada were extraordinarily large. The shipments made to this country were greatly in excess of those of the ten previous years together, and, from the low prices of Apples in America, and their high price here, money was made by the shippers. Hitherto, whilst our orchards yielded fairly, the demand for American Apples has been light, but the failure of our Apple crop last season, with an abundant one in America, has given a new impetus to the trade. During the past winter it was placed on a more systematic and permanent basis than it has heretofore occupied by a New York house, dealing largely in American products. One of the firm has spent this winter in England, attending to the reception and disposal of the consignments of fruit; while the other has attended to its selection in America, its packing and shipment. The results so far are said to have been most successful, and this trade—which, from its precarious nature, has hitherto been regarded as a series of hazardous ventures—is now put, for the first time, on a business footing. From the middle of October until the end of March, almost every steamer arriving from America brought over shipments, varying from 500 to 3000 barrels. No fewer than 90,000 barrels of Apples were landed in December at Liverpool alone, supplying chiefly the markets of the metropolis, and those of Manchester, Birmingham, Hull, and Bristol. On account of its good quality and superior condition in which it arrived, the fruit has found much favour with consumers. Its abundance has kept down the prices of Apples to such a figure as to extend their consumption. During cold weather but little difficulty is experienced in shipping fruit to this country from America. With the advent of warmer weather, however, greater care is required for its protection during the sea voyage. This involves several important considerations—having reference to the period of ripening at which the fruit is plucked, its preservation previous to packing, the packing itself, and then the method of stowage on board of the steamers. It is well known to those acquainted with the growth of Apples that there is a time when their growth is completed, when they will receive nothing further from the tree. Soon after they reach that stage the after-ripening begins in a chemical change through which the starch, so abundant in green fruit, is transformed into sugar. When this transformation is complete the fruit is in the best condition for use. Almost immediately after, however, putrefaction sets in, first dissipating the volatile aroma and destroying all delicacy of flavour, finally converting the sugar into an unwholesome acid, and consuming the tissues of the fruit. A low temperature and a dry atmosphere may sometimes retard this change; yet its progress is so easy and rapid that efforts to preserve the fruit after it has become ripe are of little avail. But the progress of the first change may be so delayed as to require several months for its accomplishment. It is only necessary for this purpose to take the fruit from the tree at the moment of its maturity, and to keep it in a low even temperature and dry pure atmosphere, secluded from light. In many of the American Apple-growing regions fruit hives are constructed where these conditions are almost secured to perfection—in which, for instance, the thermometer does not rise above 34° for months together, and fruit kept in them barely ripens in time for the late spring market. The Apples received from New York are chiefly grown in the Niagara district, and in Wayne and Orleans counties. Those shipped from Canada are principally from that portion of the province of Ontario lying on the north side of the lake from which it takes its name. Several choice varieties, however, such as the Pomme Grise, Fameuse, and St. Lawrence, are grown on the island of Montreal. New England

Apples find their outlets at Boston and Portland, and, although somewhat inferior in quality to the New York and Canadian fruit, have been well received, and sold rapidly, although at lower prices. Like everything else in America, the fruit-producing resources of the country are enormous. In 1875 there were no less than 4,500,000 acres in orchards in the United States alone, and about 274,674 acres in the Dominion, of which 207,011 were in the province of Ontario. The shipments in Apples from the United States in one year amounted to no less than 1,185,803 barrels; while the value of what was used in home consumption was £600,000. The total yield of the Canadian orchards in one year was no less than 2,121,772 barrels.—“Field.”

FRUIT TREES IN POTS & TREES ON TRELLISES.

T. F. R. (see p. 379) states that his Peach trees, planted out and trained on trellises under glass, do not set their fruit so well as those in pots. We are not told whether the houses in which they are grown are heated or unheated; but, from a very lengthened experience in Peach growing, both in pots and on trellises, I have always found those, planted out and trained on trellises, to set plenty of fruit even in unheated orchard houses. During the late severe frost in the first week in May I had a glass-covered south wall of great extent, with Peach, Nectarine, and Apricot trees planted out in the borders, and the trees are covered with young fruit, and not starved with the cold. In both heated and unheated houses this year all the Peach trees planted out and trained on trellises are producing full crops—at least all that have come under my inspection. Last year, owing to the almost tropical heat in July and August, the wood was thoroughly ripened, and showed abundance of healthy bloom. Indeed, all kinds of fruit trees this year never showed more promising signs of good crops, and if the late cold easterly winds and frosts have slightly thinned the young fruit there will be plenty left. “T. F. R.” says his orchard-house has been erected twenty-seven years, but he does not tell us how many of the pot trees which he commenced with have succumbed to old age and barrenness. I do not at all deprecate the culture of fruit trees in pots, for they are a source of great enjoyment to amateurs and usefulness to cultivators who have but a limited quantity of glass houses. The orchard-house system will, however, never be a profitable one as far as regards growing the trees in pots, for the great supply of fruit for market will be derived from trees planted out. The finest specimens of fruit of Peaches and Nectarines, either for dessert or exhibition, can only principally be gathered from trees planted out and trained on trellises, or from bushes or pyramids when planted out. Unless the trees are grown in pots of a large size, no amount of stimulants will swell the fruit to the size which they attain when the trees are grown in the borders, and neither in colour nor flavour will they compare with well-grown border fruit. W.

TALL-GROWING ORNAMENTAL GRASSES.

PAMPAS GRASS.—The Pampas is perhaps the most useful and effective of all Grasses for introducing extensively into wild coverts; it succeeds well in such situations, and is highly ornamental in autumn, when but few flowering plants are visible, lightening up as it does and contrasting beautifully with dark Evergreens. To give the best effect it should be planted in groups of three, five, or more plants in proportion to the surrounding space; single specimens may be planted in suitable nooks where the space is more limited. The upright Silvery-plumed Grass is to my thinking the best and most striking variety, and one which retains its beauty for a much longer period than any other. The rose and claret coloured Pampas Grasses are the handsomest and most showy of the forms with a drooping habit, but unless their stems be supported by means of stakes and string, they are almost certain to get broken down by strong winds before the whole of the beautiful panicles are fully developed. Sites sheltered from prevailing and cutting winds should be selected for them in front of evergreen shrubs, or backed up by sombre-foliaged trees, but at the same time a light and airy situation with a rich soil and porous subsoil is the one in which they succeed best. After the selection of the places for the plants or groups, the ground should be turned up to a depth of from 15 in. to 18 in., and a cart-load of rich soil, road-parings, or loamy turf should be allowed to each plant, and well stirred in amongst the original soil; a thick mulching of manure should be spread on the surface after planting, and if the weather be dry a

thorough soaking of water will be necessary. Pampas Grass is benefited by being planted on slightly raised mounds, on which it shows itself off to better advantage than when placed on a level surface. Strong well-established plants treated as above are almost certain to succeed. If ground game abound, wire netting should be fixed round to protect the young plants for a year or two after planting, for when the Pampas is thoroughly established these mischievous animals rarely do it any injury; on the other hand, if small weakly plants be put out in coverts, and not sufficiently protected at first, they are almost certain to prove disappointing to the planter, either through hares and rabbits devouring them, or through want of sufficient soil in which to grow vigorously and develop strong flower-spikes; the Pampas is a grass-feeding Grass, and the richer the soil the stronger and more numerous will be the flower-spikes. Even after the plants have been established in their permanent quarters, they will derive great benefit from a covering of leaf-mould or other enriching material being spread over the surface around each plant every autumn.

ARUNDO CONSPICUA.—This is another fine ornamental plant, though not quite so hardy as the Pampas Grass, and scarcely so vigorous a grower, but none the less graceful on that account. It has one advantage over the latter by coming into bloom a



The great Reed (*Arundo Donax*) in flower.

month or two earlier, and in consequence its graceful inflorescence is not so liable to be destroyed by rough winds and wet weather; while unfortunately the Pampas Grass does not open its flowers until bad weather has generally set in. In the southern and western counties this giant Reed stands the winter without protection, but further north it is not likely to succeed so well, unless some protecting material be used to ward off severe frosts.

ARUNDO DONAX.—This very desirable tall-growing Reed is strikingly effective when associated with a pond or stream of water; it also shows itself off to great advantage in pleasure-grounds amongst low-growing shrubs. A variegated form of it can be had of a still more ornamental character; but it is not so hardy and it is less vigorous in growth. The above *Arundos* should receive the same treatment as regards planting as the Pampas Grass; but a little more protection will be necessary to keep them alive during very severe winters, especially in the northern counties, or in low-lying damp situations; a rich soil and a porous subsoil on a dry, slightly raised site is the most suitable position in which to ensure healthy and strong plants capable of withstanding severe frosts.—G. B., in "Journal of Forestry."

PLATE LXXV.

HARDY AZALEAS.

(WITH A COLOURED FIGURE OF *A. MOLLIS*.)

By W. B. HEMSLEY.

WHETHER we regard the Azaleas as constituting a genus distinct from *Rhododendrons*, or as only a section of the latter, there is no difficulty in distinguishing the cultivated hardy species and varieties from the *Rhododendrons*; consequently, it is convenient and useful to keep them separate here, although there are species not in our gardens which unite the two groups both in structure and external character. All that come within our province are deciduous shrubs, which put forth their flowers before the leaves, or the leaves and flowers are developed simultaneously, and the flowers of nearly all the species and varieties have only five stamens, whilst true *Rhododendrons* are evergreens, with more numerous flowers in the clusters, and ten or more stamens in each flower. Broadly speaking, Azaleas and *Rhododendrons* have the same geographical distribution, with the exception that no true Azalea has hitherto been discovered in the mountains of India. In both cases we have a single species from South-eastern Europe and Asia Minor, and several from North America and Eastern Asia represented in our gardens. Azaleas may be classed in the first rank of deciduous shrubs cultivated for the sake of their ornamental flowers; yet, notwithstanding the beauty and variety they present, they are comparatively neglected. Amateurs having small gardens and limited means are deterred from planting them, probably because they are usually described as peat-loving plants. It is true that they attain greater perfection in a carefully-prepared soil than they do in a close, adhesive soil; but in this respect hardy Azaleas are less exacting than most *Rhododendrons*, and will flourish in places where *Rhododendron ponticum* grows freely. It is worth noting that most of the hardy Azaleas grow naturally in swampy places, but not necessarily in boggy ground. But the hybrid varieties commonly cultivated succeed well in light, thoroughly-drained soil. In the absence of peat, leaf-mould may be used, and where the soil is heavy sand should be added. Of course, the proportions of leaf-mould and sand necessary or desirable depend entirely upon the nature of the soil upon which one has to operate; and a light, porous soil requires no modifying. Planted singly or grouped, Azaleas are very effective, but they are not so well suited for mixed shrubberies, nor do they grow and flower so freely when mixed with other subjects. For the variety and brilliancy of their usually fragrant flowers they are unrivalled, and many of the tints and shades of colour are almost unknown in any other class of plants. They range through all shades and hues of yellow to orange and red to crimson, with some very singular mixtures of yellow and red; there are also white-flowered varieties. Another strong point in their favour is that they produce their flowers soon after the beauty of spring-flowering shrubs is past. Being slow-growing subjects, they should be planted rather thickly, for they are some years growing and spreading 3 ft. or 4 ft. Besides the true Azaleas with deciduous leaves, there are some hybrids between them and some of the *Rhododendrons*, especially between *R. ponticum* and *A. sinensis*. The hybrid called *R. praecox superbum* has the flowers of an Azalea and the persistent leaves of a *Rhododendron*. The following species or wild forms have given birth by intercrossing and natural variation to the numerous varieties now in cultivation; but the North American ones especially are very variable in the wild state, and it is difficult to characterize them.

Turkey Azalea (*A. pontica*, Bot. Mag., t. 433).—Although this species is much nearer to us, it does not appear to have been cultivated in British gardens so early as some of the American species. According to Aiton ("Hortus Kewensis") it was first introduced by J. Bell, Esq., in 1793; and in the Bot. Mag., under the plate quoted above, it is stated that Antony Hove, Esq., of Warsaw, introduced it in 1798. In the same place some interesting extracts, from the diary of the gentleman named, respecting its distribution will be found. It is a native of Asia Minor, chiefly in the countries bordering the Black Sea from the Caucasus westward, and also in south-eastern Europe along the valleys of the Dnieper and Dniester. It



THE DOWNY AZALEA A. MOLLIS-REGEL



occurs some distance inland, and Mr. Hove also saw it growing in thousands in a marsh, which was often overflowed by the sea. Under favourable conditions it rarely exceeds 6 ft. in height, and is usually much smaller. It differs essentially from *A. sinensis*, with which it agrees in having typically yellow flowers, in the corolla being funnel-shaped, with a long, narrow tube, and hairy outside, and in the leaves being hairy on the margin only, or very slightly hairy on the surface. The plant figured in the Bot. Mag. was grown in heat in the nursery of Mr. Watson, at Islington.

Japanese Azalea (*A. japonica*, A. Gray).—The most familiar variety of this species, that having yellow flowers, was first introduced into this country from China, and this was the cause of its being named *A. sinensis*; and this name is retained by Maximowicz in his monograph of the "Rhododendrons of Eastern Asia," although the plant does not appear to be a native of China. Several other names have been given to slight varieties, probably of garden origin in China or Japan; indeed, although the species was originally introduced in 1824, it was so imperfectly known that when Maximowicz introduced, in 1863, a variety differing from the type in having orange-coloured flowers under Blume's name of *A. mollis*, it was not identified, I believe, until he himself elaborated the whole of the species of the genus *Rhododendron* (including *Azalea*) in 1870. Messrs. Loddiges & Son introduced it from China into this country, through what agency it is not stated; Fortune again sent it to England about the year 1843, but it seems never to have spread very widely. Probably now that a new strain of varieties of this very distinct species is gradually increasing in numbers and variety, it will become more popular. The most striking cha-

characteristic of the varieties of this species among hardy Azaleas is the campanulate corolla, more like that of a true *Rhododendron* or *Azalea indica* than the Turkey or American species. The flowers appear before or with the leaves, and are almost scentless. It would be worth while trying to raise some hybrid varieties between this and the American species in order to combine the fragrance of the latter with the greater beauty of the former. Maximowicz gives the native habitat of this species as the Alpine mountains of the island of Nipon. There are several other species, natives of Japan, which would doubtless prove hardy in this country, but none of them equal in beauty the varieties of the present species.

[Synonyms—*A. sinensis*, Lodd., Bot. Cab., t. 885; *A. mollis*, Bl.]

Tree Azalea (*A. arborescens*).—A shrub or miniature tree, from 3 ft. to 10 ft. high, according to circumstances; branches and leaves quite smooth, the latter glaucous on the upper surface, and furnished with bristly hairs on the margin; long calyx-lobes and a slightly clammy corolla characterize this species. The rosy-red flowers are very fragrant, and appear after the leaves are developed. A native of North America, in mountainous districts, from Pennsylvania southwards. Introduced into this country in 1818, but it has probably had little share in the parentage of garden varieties.

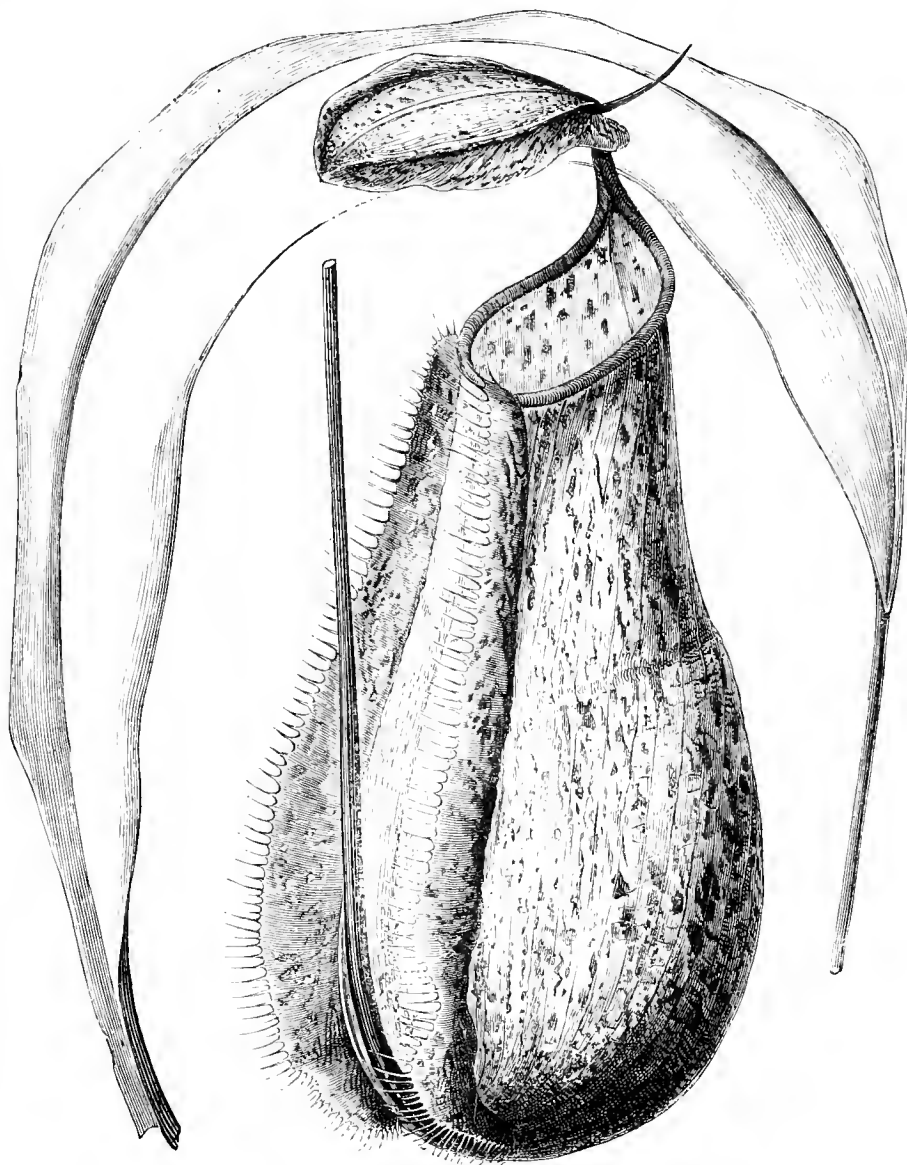
Clammy Azalea (*A. viscosa*).—This is the swamp Honeysuckle of the Americans, and differs from the last in having bristly shoots and midribs of the leaves, in the calyx-lobes being very small, and in the corolla being very clammy, with a tube much longer than the lobes. The flowers appear after the leaves, and vary from white to rose. Introduced by Peter Collinson in 1734.

Pinxter Azalea (*A. nudiflora*).—In this and the next the flowers appear before or with the leaves, and this especially is remarkable for the naked appearance of the branches when the clusters of flowers expand at the tips. At the outside, this grows only about 6 ft. high. It has hairy branchlets, leaves downy beneath, very short calyx lobes, and the tube of the slightly glandular corolla is scarcely longer than the lobes. The flowers are very variable in colour, varying in the wild state from flesh-colour to pink and purple. It inhabits swampy ground in eastern North America, from Massachusetts southwards, and was also introduced by Collinson in 1724.

Flame-coloured Azalea (*A. calendulacea*).—This differs from the Pinxter Azalea in its usually larger stature, conspicuous calyx-lobes, and in the hairy corolla-tube being shorter

than the lobes. The large, scentless flowers are yellow-orange, changing to flame-colour. It inhabits eastern North America, from Pennsylvania southwards. *A. occidentalis* (Bot. Mag., t. 5005), from California and Oregon, is scarcely different, except in its white flowers streaked with red and blotched with yellow.

Nepenthes intermedia.—This hybrid, raised in Messrs. Veitch's nursery by Mr. Court, is the result of a cross between *N. Rafflesiana* and an unnamed species with small spotted pitchers. The latter, which are produced abundantly, are large, often exceeding 5 in. in length, with a diameter of 2½ in. at the broadest part. In



Veitch's Hybrid Pitcher-plant.

shape they are, as will be seen, flask-like, slightly narrowed at the bottom, and more contracted at the mouth; the wings are prominently fringed. The numerous reddish-brown spots and flakes and a rim or marking about 1 in. below the mouth are distinctive features of this variety.

THE KITCHEN GARDEN.

CUCUMBER CULTURE IN MARKET GARDENS.

This is one of the most extensively grown indoor crops in market gardens, some growers devoting immense ranges of glass houses to its cultivation, while others grow it very largely in frames on sunken hotbeds. Some idea of the extent of its culture may be obtained from the fact that one grower at Fulham has annually a field containing many ranges of frames with from 800 to 1000 ordinary sashes. From this field are sent to market weekly during the summer from 180 to 220 dozen of fruits. The Telegraph, and varieties of it, are much grown in frames; so is the Syon House, Pettie's, and a few other sorts. These kinds, together with the Rabley, Duke of Edinburgh, Sutton's Perfection, and a few others, are chiefly used for growing in span-roofed and lean-to pits or houses. For framework the first sowing is made in little punnets or flower pots, which are placed in hot-manure frames. When the seeds germinate and are fit for potting-off, two plants are put into a 6-inch pot, and the whole replaced in the frames, keeping them near the glass. About the middle of February, as soon as the frames can be spared, they are moved aside, and trenches cast out 5 ft. wide and 2 ft. deep, and firmly filled with once or twice-turned stable litter. Over this some soil is placed, and the frames set on again. The earth that was cast out of the trenches almost levels up the space between the frames. When the heat is at a proper temperature for planting, a little more soil is introduced to the frames, and one potful (containing two plants) is placed under each sash, and one of the plants is trained towards the front of the frame and the other towards the back. The sashes are then put on and all is kept close for a few days, and, if need be, a little shading is also given by strewing some litter over the glass. Afterwards, until the plants have fairly begun to grow, no more ventilation is given than is necessary to prevent scorching in the case of bright sunshine. Another sowing is generally made to succeed the first one, but, as a rule, there are seldom more than two sowings made, and the second is only sown because all the frames are not empty at one time, to be filled by the first sowing. Where great pains are taken the earliest plants retain their good bearing qualities as long as the latest-sown ones. For several weeks after having been planted they are protected at night by covering the sashes with litter, removing it next morning; indeed, this covering is not discontinued until the month of June. When the plants have grown sufficiently to come into bloom they are most attentively looked after in the way of regulating the growths, pegging down the Vines, stopping the shoots at the joint beyond the embryo fruit, and in preventing an accumulation of superfluous growths. Throughout the day they are allowed to have plenty of air during the summer, but it is all taken off at night; in the morning the sashes are tilted up a little, and as the heat of the day increases the sashes are still further opened. Water is given in the morning abundantly to those requiring it, whilst those that are not dry have simply a sprinkling overhead. It is cold water from the tap that is entirely used, and doubtless this is the greatest drawback to Cucumber growing with which the market gardener has to contend, as where one or several acres are covered with frames, it would be almost an impossibility to make tepid all the water that would be required. Large hogsheads, however, are sunk here and there about the frame ground, and brick or cement tanks are frequently used for containing water, with which they are filled for the next day's use. Guano-water is sometimes given during the summer time, being applied through a fine rose overhead. This application is not only useful as a stimulant, but when given overhead has been found to be of material benefit in destroying or preventing red spider as well as invigorating old plants. In

reference to woodlice toads are put in the frames to destroy them. A couple of men are usually kept at work in the frame ground, and on three days of the week (Monday, Wednesday, and Friday), they are employed in cutting fruits for market, and on the other three week days they are busy stopping and regulating the Vines. Should any young fruits exhibit a tendency to become crooked they are put into cylindrical glasses open at both ends. These glasses are about 12 in. or 15 in. long, and 1½ in. or 2 in. in diameter, and several thousands of them are employed in one large frame-ground, as one good and straight fruit is worth nearly a dozen small and deformed ones. The crooked ones do for pickling. Cucumbers require sunny weather to set well, and in dull wet seasons they do not thrive well, especially in the earlier part of the year. Should the summer be hot and bright, the sashes must be shaded a little, and this is done by strewing some rank litter over the glass; but many market gardeners, by way of economy of labour, paint the sashes with whiting, as in the case of glass houses. By August the plants are getting exhausted; therefore careful attention is paid to thinning out old and bare Vines, and encouraging young wood by means of stimulants, in the way of manure-water and coverings from cold; and in this way they last till September. In August some fruits are saved for seed, for if left sooner they would materially weaken the crop of marketable fruit. Should any "nosed" fruits be detected, they should be tied round with string, and left to ripen, being certain to contain good seed. When the seed fruits become yellow and are cut, they are placed under sashes or on boards before the sun, so as to get thoroughly ripe and hard before being separated from the pulp. In some market gardens narrow span-roofed houses are employed for Cucumber growing, and these are doubtless the best kind of structure for the purpose, but in some cases very roughly-constructed places are used with the best result, for example:—In a village near London there is a small garden devoted to Cucumber growing for market, where the most simple means are employed and the best results obtained. The structures, or houses as they may perhaps be called, are primitive indeed, the first house being an ordinary lean-to against a brick wall, about 20 yards long and 10 ft. wide. In front of this is another of the same length and width, but with a span-roof, also a little glass under the front plate. These structures are low, but to get head-room a pathway is sunk along the middle, perhaps a yard deeper than the ground-level. On either side of this pathway is a long wooden trough from end to end of the house. These troughs are the most noticeable feature of the whole affair; they are of rough inch boards from 2 ft. 6 in. to 3 ft. wide, and 10 in. deep, the soil used being decayed turf full of vegetable fibre, mixed with decayed horse-droppings. The troughs are not quite filled at planting out, and as the mass gets filled with roots, a slight top-dressing, consisting of road-grit and well-decomposed horse-droppings is from time to time applied. The idea is correct, viz. that slight dressings frequently applied maintain health without over-stimulating. The point most noticeable is the small modicum of soil allotted to the plants: they stand about 2 ft. apart; they are grown with straight stems, about 1 ft. or 18 in. long, and trained on temporary trellises, 1 ft. from the glass, which is not far enough, as both cold and sun affect them slightly at that distance. The heat is supplied by means of flues—that is, 9-in. socket pipes put together with cement do duty as brick-flues. A row of these pipes is carried along on either side under the middle of the troughs. In excavating the path the side earth is left; on the top of this run these pipe-flues, almost close to the bottom of the troughs in which the plants grow. This flue is the only source of heat; in severe weather straw mats are put on, and are found to be of great service. The cubical contents of one of these structures is very little; and limited as the surface is, it can readily be covered up to economise the heat given off inside. The plants for bearing all spring and summer are put out in the early part of winter; the object being to have plenty when the demand is good. The quantity of fruit produced in these small houses is something marvellous. They are cut three times a week, and supplied direct to the consumers, only the rough ones are sent to the market for what they will bring. The

sort this grower prefers above all others is Sutton's Perfection. Telegraphs and various other esteemed sorts are grown, but no sort, in his opinion, is equal to Sutton's. The culture of the Cucumber in the open air is now seldom practised by market gardeners in the neighbourhood of London. Many have attempted it, but we believe most of them have now abandoned it, the result not having proved sufficiently encouraging for them to persevere in the matter. Where, however, it is carried on they are grown under glass, and hardened off, and planted out 6 ft. asunder, and 10 ft. row from row, and hand-glasses are put over them. When they begin to grow the ground is well mulched with straw, to keep the earth moist and the fruit clean. Due attention is paid to their subsequent culture in the way of stopping, thinning, &c., and in many cases good results are obtained. In many cases, however, Cucumbers form a somewhat uncertain crop in open fields, some localities being unsuited to their culture; but still, while their produce is in such demand in all large towns, their culture might be profitably extended. At present it is confined to comparatively small spots in one or two counties, the soil and climate of which seem unusually well adapted to their growth. Small, however, as the area at present under Cucumber cultivation is, it is reported to furnish to the London markets not less than 600 tons a week during what is termed the Cucumber season. Of these upwards of 100 tons have been known to be sent to Covent Garden in a single day. They are largely grown at Sandy, in Bedfordshire, and at St. Neot's, in Huntingdonshire. They are packed in square baskets and conveyed by train to the London and other markets. In the neighbourhood of the stations just named Cucumbers are grown by the acre in the open field, many cultivators having as many as ten acres at one time under this description of crop. The soil in the neighbourhood just indicated is, for the most part, a warm, lightish loam or gravel, in every way suited to the growth of this esculent. The ground to be planted is well prepared during winter, and again deeply stirred and otherwise put in good order in spring. The seed is then sown about the beginning of May, where the plants are intended to grow, in rows some 4 ft. apart, and the plants stand nearly 2 ft. asunder in the row. In favourable seasons they soon push into active growth and cover the ground with Vines, which, during the latter end of May, the whole of June, and beginning of July, spread in all directions and come into bearing. During their growth, weeding and thinning their superfluous shoots are well attended to, and if the plants should not entirely cover the ground, or wherever blanks occur, Mangel Wurzel is planted in the vacant spaces. About 4 yards apart are also rows of Onions, set early in the spring, which, being allowed to run to seed, serve in some measure both for shade and shelter. Where Onions are not used for this purpose, Rye, sown in the autumn, 4 yards or 5 yards apart, and cut as soon as the Vines cover the ground, is employed; Peas are also sometimes used for the same purpose. In this way the ground is induced to produce two or three kinds of crops at the same time, and if one should happen to fail, one or more of the others, as the case may be, take its place. By the middle of July or earlier, according to the season, the crop is ready for a first gathering, and from that time to the end of September fruit varying in length from 10 in. to 12 in., green and solid, though sometimes unshapely, is continually being cut, sometimes to the extent of 3 tons at a time, and that from little more than as many acres. What an acre of Cucumbers realises in the way of money we are unable to say with certainty; but they are stated to yield a good profit to the grower, even if he should get no more than 1d. or 2d. a dozen for them. At these prices sums varying from £20 to £60 an acre, according to the season, are said to have been obtained for them. When gathered they undergo the process of sorting, the best being generally sent to London, second-rate kinds to the provincial markets, and what are small, crooked, or discoloured are given to pigs. Ripe ones are saved for seed, so that little or no waste is ever experienced with crops of this kind. The baskets in which Cucumbers are sent to market are called "pads." In shape they resemble those used by wine merchants, *i.e.*, square with hinged lids, and they generally hold about two bushels. It has often surprised people who

think Cucumbers cannot be grown without a frame, how cottagers were able to produce such fine specimens of them as they frequently do at local exhibitions. There is, however, no difficulty in the matter; indeed, the wonder ought to be, that Cucumbers are not more extensively cultivated out-of-doors during summer than they are. The cottager selects the warmest corner of his garden for them. When the spot has been decided upon, two or three circular holes are made, 3 ft. across, and about 18 in. deep. These are filled with garden refuse, mixed with some rough manure, and covered about 8 in. or 10 in. deep with some of the richest and best of the soil that was thrown out of the holes. In the centre are sown four or five seeds 1 in. deep, and these are protected by a flower-pot or an oiled paper cap until they have vegetated. In the fields above alluded to, however, no such trouble is taken; the ground is merely, as previously stated, well stirred and worked, thrown into slight ridges, and the seed sown without any bottom-heat or artificial protection whatever. Thus it will be seen how easy it is to have plenty of Cucumbers, with comparatively little expense in the way of preparation or labour; and that, as a crop, they are remunerative is evident from the fact, that ground which would grow cereals or root-crops in perfection is devoted to Cucumbers even by large cultivators of grain crops. S.

Paraffin Oil and Seeds.—I have not experimented with Peas and paraffin, but I have soaked both Radish and Turnip seeds in it for at least an hour, and afterwards sowed them without their receiving any injury. I tried the paraffin with Radish to see whether or not birds would object to the taste, as both chaffinches and sparrows are ravenously fond of the freshly germinated seeds. They were, however, left alone, but whether the paraffin saved the crop or not, I cannot say. The Turnip seed was soaked in the oil to test its value with reference to keeping off the fly; one-half the seed was steeped and one-half was not, all being sown at the same time side by side. All germinated freely, but as the fly spared all the plants the experiment proves nothing.—A. D.

Transplanting Young Vegetables.—Broccoli, Cabbage, Cauliflower, and all other vegetables of that kind, are generally raised in seed-beds, and many are in the habit of transplanting them into another bed before planting them in their fruiting quarters. We have tried this plan at different times; the plants gain nothing by it, but on the contrary, often lose a great deal. It is well known that no plant can be transplanted without receiving a check, and the less frequently planting is done, the less it will have to overcome. No kind of greens need be planted more than once. When a number of plants come up in the seed-bed, there are always some that take the lead; when the largest have made from four to six leaves, they may be lifted carefully and planted permanently. The smaller ones form a succession to these, and by removing the plants as they grow they never become crowded or drawn up. When these little plants are planted out at first they look as if they would never come to anything, but the roots soon catch hold of the soil, and after that they grow amazingly, and come to maturity sooner and more perfectly than plants which have been half killed two or three times through shifting.—A NORTHERN GARDENER.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Osborn's French Bean.—I find this to be the best Bean for forcing; it is dwarf and compact in habit, and very prolific. *Leveon's Best of All* is also a good forcing variety. I grow my Beans in 8-in. pots, and set them in saucers of manure water, and under this treatment I find them to last in bearing double the time they otherwise would do, and it also saves labour in watering.—J. THOMSON, *Inverloch Castle, Fort William.*

A Little-known Vegetable.—In addition to the vegetable crops commonly grown there are others which would well repay culture in market gardens. One of these is Mercury, or Good King Henry, so largely grown by cottagers in Lincolnshire. This plant, the *Chenopodium Bonus Henricus* of botanists, bears a tender young leaves resembling Spinach, which, when cooked, are but little inferior in flavour to the finest Asparagus. It is a robust-growing perennial, and, when once planted in deep, rich soil, requires no further cultural attention than a dressing of well-decomposed manure during the winter months.—B.

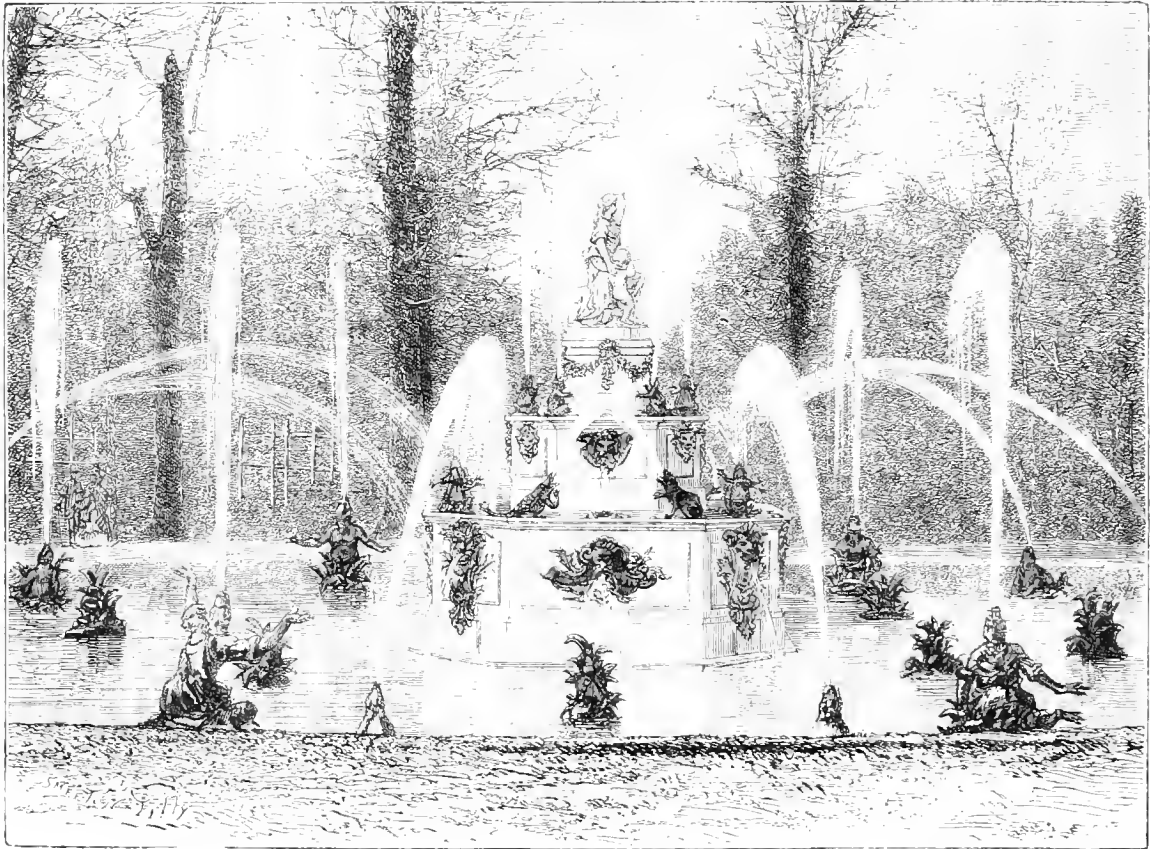
Tying Early Cabbages.—In this neighbourhood tying early Cabbages is an operation largely practised, but not for the purpose of promoting early hearing, as the Cabbages are cut almost as soon as they are tied. I believe it is done more to satisfy a market tradition than anything else, as the cutting of the crop directly after the tying shows that no beneficial result in the growth can follow. Probably Cabbages go to market and are dispersed to the numerous consumers with less injury when tied than would otherwise be the case. Early hearing depends more upon the variety than upon tying; and no amount of tying will make a coarse green into a good compact-hearted Cabbage.—A. D.

THE JUJUBE ZIZYPHUS.

THE Buckthorn family (Rhamnaceæ), includes over 200 widely distributed species, represented in South America by the beautiful genus *Ceanothus*, in Europe and Asia by *Zizyphus*, in South Africa by *Phylica*, and in Australia by *Pomaderris*. The Jujube (*Zizyphus vulgaris* and *Z. Jujuba*) are the species of most interest to the fruit grower. The former is a native of Syria, and is extensively distributed throughout South Europe, North and Western Africa, and Western Asia. This species was introduced into California from France three years ago, and was planted in Sonoma Valley, where the trees have made a vigorous growth, and produced the first crop of fruit last season. It is naturally a prickly, entangled shrub, but may be trained to form a small tree 10 ft. or 12 ft. high. The twigs and small branches are of a reddish-brown colour, and the whole plant is armed with strong, sharp thorns 1 in. in length. The leaves are small and of a delicate green, and the blossoms minute but fragrant. The fruit is of the size and shape of a large Olive, and when

yield its annual crop of valuable fruit. According to Theophrastus, this shrub, or *Z. lotus*, was so common on the island of Lotophagi that a Roman army, on its way to Carthage, subsisted for a time upon its fruit. We would not recommend it to be extensively planted, as the fruit is not likely to prove as acceptable as the more popular varieties now cultivated, but it is well worth a place in every garden for the sake of its delicate foliage and general attractiveness, while its fruit is by no means unpalatable or valueless.

Z. Lotus, another species, native of South and Western Africa, is of less interest for its fruit, though of some importance in its native countries. The berries are of a yellow colour and nutritious. They are converted into a kind of bread, and a beverage is manufactured from them. This fruit is supposed to have formed part of the food of the ancient Lotophagi. This variety has hooked spires, and is a rambling growing shrub. There are other species, including *Z. sinensis*, which produce the fruit sold in the European markets as Japouicas, of more or less importance, which are worthy of a trial in



Fountains in the Gardens at La Granja.

ripe is covered with a smooth, reddish tough skin like that of the Date, which it somewhat resembles in flavour. It has a sweet or sub-acid pulp, surrounding a hard, oblong seed which contains a little oily kernel. The dried or preserved fruit is known in the markets of South Europe as Jujubes, and is much used in France, Spain, and Italy as a sweetmeat on the table, and is said to be an invariable accompaniment in the peasant boy's lunch basket. The well-known Jujube paste of the shops, when genuine, is made of it, though the inventive genius of the age produces a mixture of gum-arabic, sugar, water, and a little colouring matter, without a particle of the fruit, that is disposed of as the "Simon Pure" pâte de Jujubes.

The tree succeeds in almost any soil, if not too wet, and is perfectly hardy in this climate. It is easily raised from cuttings, seeds, or suckers, the latter coming up in abundance around the old trees. Seedlings come into bearing in six or seven years, and suckers and cuttings in two or three. The shrubby habit of the plant and its armament of sharp thorns render it well adapted for the purposes of a hedge plant. Planted thickly it would present an effectual barrier to any animal larger than a squirrel, and would doubtless continue to

California.—"California Horticulturist." [The Jujube of the south of Europe hardly ever reaches the size of a large Olive. Plucked just before it is ripe, crushed and squeezed into water it makes a delicious, slightly acid beverage on a hot day.]

The Fountains of La Granja.—The gardens of La Granja were arranged by Philip V., and intended by him to represent Versailles in miniature. The position he chose was a sterile one, but magnificent on account of the natural advantages it offered. The waters particularly being more limpid than those of Versailles, at that time troubled, contributed in no small degree to make these gardens one of the most beautiful spots in Europe. The Fountain of Latone, of which the accompanying engraving gives an idea, was intended as a special reminiscence of Versailles, without, nevertheless being obliged to see in this monument a copy of the one so generally known and from which it takes its name. The gardens at La Granja show how far-reaching may be the effect of example, bad as well as good.—M. L.

WEeping BROOM.

(GENISTA PROSTRATA).

Few hardy dwarf-growing shrubs rival this in the pure golden colour of its flowers, which are freely produced in spring,



Flower of Weeping Broom (natural size).

and contrast well with the slender, thong-like, almost leafless branchlets on which they are borne. When grown in the



Weeping Broom grafted on the Laburnum.

ordinary way it forms a low, dense-habited tuft, and when planted on natural or artificial rockwork it is an effective plant, quite distinct in habit from the tall *G. scoparius* or Common

Broom of our heaths and commons, of which it is said to be a form. In Messrs. Osborn's nursery, Fulham, this plant and the graceful white-blossomed *Cytisus filipes* are grafted on stocks of the Laburnum, and treated in this manner, both forming pleasing early flowering shrubs for pot-culture in the greenhouse during the spring months. The annexed illustrations show the habit of the plant when grafted standard high, and also its flowers of the natural size. B.

THE PLANT-LORE OF SHAKESPEARE.

(Continued from p. 396).

Lily.

- (1) *Iris*. Thy banks with Peonied and Lilled brims.
Tempest, act iv., sc. 1.
- (2) *Lance*. Look you, she is as white as a Lily and as small as a wand.
Two Gentlemen of Verona, act ii., sc. 3.
- (3) *Julia*. The air has stained the Roses in her cheeks,
And pinched the Lily tincture of her face.
Ibid., act iv., sc. 4.
- (4) *Thisbe*. Most radiant Pyramus, most Lily-white of hue.
Midsummer Night's Dream, act iii., sc. 1.
- Thisbe*. These Lily brows.—*Ibid.*, act v., sc. 1.
- (5) *Perdita*. Lilies of all kinds,
The Flower-de-luce being one.
Winter's Tale, act iv., sc. 3.
- (6) *Princess*. Now, by my maiden honour, yet as pure
As the unsullied Lily.
Love's Labour's Lost, act v., sc. 2.
- (7) *Queen Katharine*. Like the Lily
That once was mistress of the field, and flourished,
I'll lay my head, and perish—*Henry VIII.*, act iii., sc. 1.
- (8) *Cranmer*. Yet a virgin,
A most unspotted Lily shall she pass
To the ground.
Ibid., act v., sc. 4.
- (9) *Troilus*. Give me swift transportance to those fields,
Where I may wallow in the Lily beds
Proposed for the deserter.
Troilus and Cressida, act iii., sc. 2.
- (10) *Marcus*. Oh, had the monster seen those Lily hands
Tremble like Aspen leaves upon the lute.
Titus Andronicus, act i., sc. 5.
- (11) *Titus*. Fresh tears
Stood on her cheeks as doth the honey-dew
Upon a gathered Lily almost withered.
Ibid., act iii., sc. 3.
- (12) *Iachimo*. How bravely thou becomest thy bed, fresh Lily!
Cymbeline, act ii., sc. 2.
- (13) *Guidarius*. Oh, sweetest, fairest Lily!
My brother wears thee not one half so well,
As when thou grewest thyself.—*Ibid.*, act iv., sc. 2.
- (14) *Constance*. Of Nature's gifts thou may'st with Lilies boast,
And with the half-blown Rose.
King John, act iii., sc. 1.
- (15) *Salisbury*. To gild refined gold, to paint the Lily,
To throw a perfume on the Violet,
Is wasteful and ridiculous excess.
Ibid., act iv., sc. 2.
- (16) *Kent*. A Lily-livered, action-taking knave.
King Lear, act ii., sc. 2.
- (17) *Macbeth*. Thou Lily-livered boy.—*Macbeth*, act v., sc. 3.
- (18) For sweetest things turn sourest by their deeds—
Lilies that fester smell far worse than weeds. *Sonnet 91*.
- (19) Nor did I wonder at the Lilies white,
Nor praise the deep vermilion of the Rose. *Sonnet 98*.
- (20) The Lily I condemned for thy hand.—*Sonnet 99*.
- (21) The silent war of Lilies and of Roses
Which Tarquin viewed in her fair face's field.
Rape of Lucrece.
- (22) Her Lily hand her rosey cheek lies under,
Cozening the pillow of a lawful kiss. *Ibid.*
- (23) The colour in thy face
That even for anger makes the Lily pale
And the red Rose blush at her own disgrace. *Ibid.*
- (24) A Lily pale with damask die to grace her.—*Passionate Pilgrim*.
- (25) Full gently now she takes him by the hand,
A Lily prisoned in a jail of snow. *Venus and Adonis*.

Which is the queen of flowers? There are two rival candidates for the honour—the Lily and the Rose; and as we look on the one or the other, our allegiance is divided, and we vote the crown first to one and then to the other. We should have no difficulty “were t’other fair charmer away,” but with two such candidates, both equally worthy of the honour, we vote for a diarchy instead of a monarchy, and crown them both. Yet there are many that would at once choose the Lily for the queen, and that without hesitation, and they would have good authority for their choice. “O Lord, that bearest rule,” says Esdras, “of the whole world, Thou hast chosen Thee of all the flowers thereof one Lily.” Spenser addresses the Lily as

The Lily, lady of the flowering field.

which is the same as Shakespeare’s “mistress of the field” (7), and many a poet since his time has given the same vote in many a pretty verse, which, however, it would take too much space to quote at length; so that I will content myself with these few lines by Alexander Montgomery (coeval with Shakespeare):—

I love the Lily as the first of flowers
Whose stately stalk so straight up is and stay;
To whom th’ have ay lowly louts and cowers
As bound so brave a beauty to obey.

Montgomery here has clearly in his mind’s eye the Lily now so called; but the name was not so restricted in the earlier writers. “Lilium, cujus vox generalit licentiosa usurpatione adscribitur omni flori commendabili”—Laurembergius, 1632. This was certainly the case with the Greek and Roman writers, and it is so in our English Bible in most of the cases where the word is used, but perhaps not universally so. It is also used by Bullein when speaking of the flower of the Honeysuckle (see Honeysuckle), and it must have been used in the same sense by Isaak Walton, when he saw a boy gathering “Lilies and Ladysmocks” in the meadows.

We have still many records of this loose way of speaking of the Lily, as, for instance, in the Water Lily, the Lily of the Valley, the Lent Lily, St. Bruno’s Lily, the Scarborough Lily, the Belladonna Lily, and several others, none of which are true Lilies.

But it is time to come to Shakespeare’s Lilies. In all the twenty-five passages the greater portion simply recall the Lily as the type of elegance and beauty, without any special reference to the flower, and in many the word is only used to express a colour, Lily-white. But in the others he doubtless had some special plant in view, and there are two species which, from contemporary writers, seem to have been most celebrated in his day; the one is the pure White Lily (*Lilium candidum*), a plant of which the native country is not yet quite accurately ascertained, but whether a European plant or not, it probably came to England from the East in very early times. It was certainly largely grown in Europe in the Middle Ages, and was universally acknowledged by artists, sculptors, and architects, as the emblem of female elegance and purity, and none of us would dispute its claim to such a position. There is no other Lily which can surpass it, when well grown, in stateliness and elegance, with flowers of the purest white and the most graceful shape, and sweet scented, and crowning the top of the long, leafy stem with such a coronal as no other plant can show. On the rare beauties and excellences of the White Lily it would be easy to fill a volume merely with extracts from old writers, and such a volume would be far from uninteresting. Those who wish for some such account may refer to the “Monographie Historique et Littéraire des Lis,” par Fr. de Camart d’Hamale, 1870. There they will find more than fifty pages of the botany, literary history, poetry, and medical uses of the plant, together with its application to religious emblems, numismatics, heraldry, painting, &c. Two short extracts will suffice here:—“Le lis blanc, surnommé la fleur des fleurs, les délices de Venus, la Rose de Junon, qu’Anquillara désigna sous le nom d’Ambrosia, probablement à cause de son parfum suivant, et peut-être aussi de sa soûdisante divine origine, se place tout naturellement à la tête de ce groupe splendide.” “C’est le Lis classique par excellence, et en même temps le plus beau du genre.” The other is the large Scarlet or Chaldeonian Lily; and this also is one of the very handsomest, though its beauty is of a very different kind

to the White Lily. The habit of the plant is equally stately, and is indeed very grand, but the colours are of the brightest and clearest red. These two plants were abundantly grown in Shakespeare’s time, but besides these there do not seem to have been more than about half-a-dozen specimens in cultivation. There are now forty-six recognised species, besides varieties in great number.

The Lily has a very wide geographical range, spreading from Central Europe to the Philippines, and species are found in all quarters of the globe, though the chief homes of the family seem to be in California and Japan. Yet we have no wild Lily in England. Both the Martagon and the Pyrenean Lily have been found, but there is no doubt they are garden escapes.

As a garden plant it may safely be said that no garden can make any pretence to the name that cannot show a good display of Lilies, many or few. Yet the Lily is a most capricious plant; while in one garden almost any sort will grow luxuriantly, in a neighbouring garden it is found difficult to grow any in a satisfactory manner. Within the last few years their culture has been much studied, and by the practical knowledge of such great growers of the family as G. F. Wilson, H. J. Elwes, and other kindred liliophilists, we shall probably in a few years have many difficulties cleared up both in the botanical history and the cultivation of this lovely tribe.

But we cannot dismiss the Lily without a few words of notice of its sacred character. It is the flower specially dedicated to the Virgin Mary, and which is so familiar to us in the old paintings of the Annunciation. But it has, of course, a still higher character as a sacred plant from the high honour placed on it by our Lord in the Sermon on the Mount. After all that has been written on “the Lilies of the field,” critics have not yet decided whether any, and, if so, what particular plant was meant. Each Eastern traveller seems to have selected the flower that he most admired in Palestine, and then to pronounce that that must be the Lily referred to. Thus, at various times it has been decided to be the Rose, the Crown Imperial, the White Lily, the Chaldeonian Lily, the Oleander, the Wild Artichoke, the Tulip, and many others, but the most generally received opinion now is, that if a true Lily at all, the evidence runs most strongly in favour of the *L. chaldeonicum*, but that Dean Stanley’s view is more probably the correct one, that the term “Lily” is generic, alluding to the many beautiful flowers, both of the Lily family and others, which abound in Palestine. The question, though deeply interesting, is not one for which we need to be over-curious as to the true answer. All of us, and gardeners especially, may be thankful for the words which have thrown a never-dying charm over our favourites, and have effectually stopped any foolish objections that may be brought against the deepest study of flowers, as that the subject is a petty one, with no great results. To any such silly objections (and we often hear them) the answer is a very short and simple one—that we have been bidden by the very highest authority to “consider the Lilies.”

Lime.

- (1) *Ariel*. All prisoners
In the Lime-grove which weather-fends your cell.
Tempest, act v., sc. 1.
- (2) *Prospero*. Come, hang them on this Lime.
Ibid., act iv., sc. 1.

It is only in comparatively modern times that the old name of Lime or Linden has given place to Lime. The tree is a doubtful native, that has been long introduced, perhaps by the Romans. It is a very handsome tree when allowed room, but it bears clipping well, and so is very often seen tortured into the most unnatural shapes. It was a very favourite tree with our forefathers to plant in avenues, not only for its rapid growth, but also for the delicious scent of its flowers; but the large secretions of honey-dew which load the leaves, and the fact that it comes late into leaf, and sheds its leaves very early, have rather thrown it out of favour of late years. As a useful tree it does not rank very high, except for wood-carvers, who highly prize its light, easily cut wood, that keeps its shape, and is very little liable to crack or split either in the working or afterwards. Nearly all Grindling Gibbons’ delicate carving is in Lime wood. To gardeners the Lime is further useful as

furnishing the material for bast mats, which are made from its bark, and interesting as being the origin of the name of Linnaeus.

Ling.

Gonzalo. Now would I give a thousand furlongs of sea for an acre of barren ground, Ling, Heath, brown Furze, anything.

Tempest, act i., sc. 1.

If this be the correct reading (and not Long Heath) the reference is to the Heather or Common Ling (*Calluna vulgaris*). This is the plant that is generally called Ling in the south of England, but in the north of England the name is given to the Cotton Grass (*Eriophorum*). It is very probable, however, that no particular plant is intended, but that it means any rough, wild vegetation, especially of open moors and Heaths.

Locusts.

Iago. That feed that to him now is as luscious as Locusts, shall be to him shortly as bitter as Coloquintida.

Othello, act i., sc. 3.

The Locust is the fruit of the Carob tree (*Ceratonia siliqua*), a tree that grows naturally in many parts of the south of Europe, the Levant, and Syria, and is largely cultivated for its fruit. These are like Beans, full of sweet pulp, and are given in Spain and other southern countries to horses, pigs, and cattle, and they are occasionally imported into England for the same purpose. The Carob was cultivated in England before Shakespeare's time. "They grow not in this country," says Lyte, "yet, for all that, they be sometimes in the gardens of some diligent Herboristes, but they be so small shrubbes that they can neither bring forth flowers nor fruites." It was also grown by Gerarde, and Shakespeare may have seen it; it is now very seldom seen in any collection, but the name is preserved among us, as the jeweller's carat weight is said to have derived its name from the Carob Beans, which were used for weighing small objects.

The origin of the tree being called Locust is a little curious. Readers of the New Testament, ignorant of Eastern customs, could not understand that St. John could feed on the insect locust, which, however, is now known to be a common and acceptable article of food, so they looked about for some solution of their difficulty, and decided that the Locusts were the tender shoots of the Carob tree, and that the wild honey was the luscious juice of the Carob fruit. Having got so far it was easy to go farther, and so the Carob soon got the names of St. John's Bread and St. John's Beans, and the monks of the desert showed the very trees by which St. John's life was supported. But though the Carob tree would not produce the locusts on which St. John fed, there is little or no doubt that "the husks which the swine did eat," and which the Prodigal Son longed for, were the produce of the Carob tree.

Long Purples.

Queen. Therewith fantastic garlands did she make
Of Crowflowers, Daisies, Nettles, and Long Purples,
That liberal shepherds give a grosser name,
But our cold maids do Dead Men's Fingers call them.

Hamlet, act iv., sc. 7.

In "Flowers from Stratford-on-Avon" (a pretty book published a few years ago with plates of twelve of Shakespeare's flowers) it is said that "there can be no doubt that the Wild Arum is the plant alluded to by Shakespeare as forming part of the nosegay of the crazed Ophelia;" but the authoress gives no authority for this statement, and I believe that there can be no reasonable doubt that the Long Purples and Dead Men's Fingers are the common purple Orchises of the woods and Meadows (*Orchis Morio*, *O. mascula*, and *O. maculata*). The name of Dead Men's Fingers was given to them from the pale palmate roots of some of the species (*O. latifolia*, *O. maculata*, and *Gymadenia conopsea*), and this seems to have been its more common name.

Then round the meddowes did she walke,
Catching each flower by the stalke,
Such as within the meddowes grew,
As Dead Man's Thumb and Harebell blew;
And as she pluckt them, still cried she,
Alas! there's none 'ere loved like me.

—*Roxburghe Ballads.*

As to the other names to which the Queen alludes, we need not inquire too curiously: they are given in all their liberality and grossness in the old "Herbals," but as common names they are, fortunately, extinct. Nor are the names of Long Purples and Dead Men's Fingers still in use, as far as I am aware, for I can only find one example—

Round thee blow, self-pleached deep,
Bramble Roses faint and pale,
And Long Purples of the dale.

"A Dirge."—*Tennyson.*

and the Orchis, though so common, is without an English name, for though I have often asked country people for its name, I have never obtained one, and so it is another of those curious instances which are so hard to explain, where an old and common English word has been replaced by a Greek or Latin word, which must be entirely without meaning to nine-tenths of those who use it.* There are similar instances in Crocus, Cyclamen, Hyacinth, Narcissus, Anemone, Beet, Lichen, Polyanthus, Polyphy, Asparagus, and others.

The Orchid family is certainly the most curious in the vegetable kingdom, as it is almost the most extensive, except the Grasses. Growing all over the world, in any climate, and in all kinds of situations, it numbers 3000 species, of which we have thirty-seven species in England; and with their curious irregular flowers, often of very beautiful colours, and of wonderful quaintness and variety of shape, they are everywhere so distinct that the merest tyro in botany can separate them from any other flower, and the deepest student can find endless puzzles in them, and increasing interest.

Though the most beautiful are exotics, and are the chief ornaments of our stoves and hothouses, yet our native species are full of interest and beauty. Of their botanical interest we have a most convincing proof in Darwin's "Fertilization of Orchids," a book that is almost entirely confined to the British Orchids, and which, in its wonderfully clear statements, and its laborious collection of many little facts all leading up to his scientific conclusions, is certainly not the least to be admired among his other learned and careful books. And as to their horticultural interest, it is most surprising that so few gardeners make the use of them that they might. They were not so despised in Shakespeare's time, for Gerarde grew a large number in his garden. It is true that some of them are very impatient of garden cultivation, especially those of the *Ophrys* section (such as the Bee, Fly, and Spider Orchises), and the rare *O. hircina*, which will seldom remain in the garden above two or three years, except under very careful and peculiar cultivation. But, on the other hand, there are many that rejoice in being transferred to a garden, especially *O. maculata*, *O. mascula*, *O. pyramidalis*, and the Butterfly Orchis of both kinds (*Habenaria bifolia* and *chlorantha*). These, if left undisturbed, increase in size and beauty every year, their flowers become larger, and their leaves (in *O. maculata* and *O. mascula*) become most beautifully spotted. They may be placed anywhere, but their best place seems to be among low shrubs, or on the rockwork. Nor must the hardy Orchid grower omit the beautiful American species, especially the *Cypripedia* (*C. spectabile*, *C. pubescens*, *C. acaule*, and others). They are among the most beautiful of low hardy plants, and they succeed perfectly in any peat border that is not too much exposed to the sun. The only caution required is to leave them undisturbed; they resent removal and broken roots; and though I hold it to be one of the first rules of good gardening to give away to others as much as possible, yet I would caution any one against dividing his good clumps of *Cypripedia*. The probability is, that both giver and receiver will lose the plants. If, however, a plant must be divided, the whole plant should be carefully lifted, and most gently pulled to pieces with the help of water.

Love-in-Idleness.—(see Pansy).

Mace (see Nutmeg).

H. N. ELLACOMBE.

(To be continued).

* Since writing this I have found that in Yorkshire the local name for the Meadow Orchis is Crake-feet.—H. N. E.



Dwarf Lupine (*Lupinus nanus*).



Field Geranium (*G. pratense*).



Welsh Poppy (*Papaver cambricum*).



Evergreen Candytuft (*Iberis saxatilis*).



Dwarf Lilac-flowered Phlox (*P. subulata*).



Pinnate Candytuft (*Iberis pinnata*).



Columbine Meadow Rue (*Thalictrum aquilegifolium*).



Siberian Flax (*Linum sibiricum*).



Hebe americana.

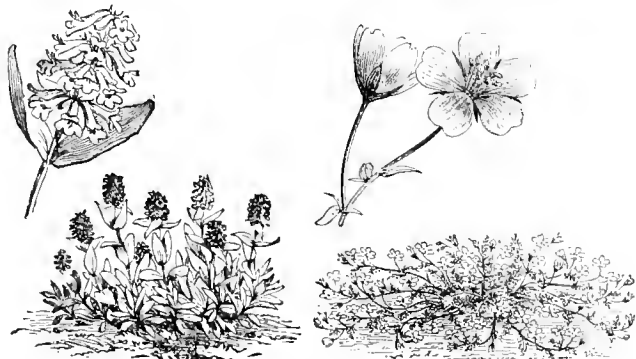
SOME HARDY FLOWERS OF THE WEEK IN LONDON GARDENS.

HARDY FLOWERS IN LONDON GARDENS.

VEGETATION in all its forms this spring is more backward than in previous years when the winters have been more severe, and even now near the end of May outdoor flowers are comparatively scarce, especially on badly-drained, stiff soils. In many of the small gardens near London may, nevertheless, be seen in good bloom such plants as *Scilla nutans* and *S. campanulata*, various kinds of *Iris*, *Daisies*, and other easily-grown plants. Amongst *Tulips* *T. præcox*, *persica*, and *fulgens* are attractive, as are also the scarlet-tipped, yellow-petalled flowers of *T. cornuta*, and the pale yellow blossoms of *T. retroflexa*. *Iris susiana* is now throwing up fine spikes of flower; some plants of it that have had the protection of a cold house have produced immense blooms; the beautiful blue-flowered

Presli's Catchfly (*Lychnis Preslii*).Annual Lupine (*Lupinus bicolor elegans*).

Gentiana verna is just now in great beauty, and the dwarf *Phloxes*, *P. subulata*, *P. setacea* *atro-purpurea*, and the white-flowered *P. Nelsoni*, are completely covered with bloom; the purplish flowers of *Lychnis Preslii*, too, are opening in abundance, and the Alpine *Lychnis* (*A. alpina*) is densely covered with rosy-pink blossoms. American *Cowslips* are likewise in a forward state, especially *Dodecatheon Jeffrayanum*. On the Scarlet *Geum* (*G. coccineum*) quantities of blossoms may now be seen, and *Saxifraga peltata* is also flowering freely. Amongst the *Globe-flowers*, too, which are just now at their best, may be noticed the rich golden-flowered, dwarf-habited *Trollius Fortunei*. Several varieties of the *Rock*

Early Dwarf Pentstemon (*P. confertus*).*Limnanthes Douglasi*.

Cistus are also flowering freely. Blooms of *Narcissus juncifolius* may still be gathered in good condition, as may also those of the White Wood Lily (*Trillium grandiflorum*). *Ranunculus amplexicaulis* is still in good bloom, and the small, double, pure white blossoms of *R. aconitifolius* are likewise abundant and highly valued by those who have small bouquets to make. Some of the hardy *Lady's-slippers* are well furnished with bloom-buds, while those of *Cypripedium pubescens* are already open. *Polemonium reptans* is flowering freely, as are also the yellow *Lasthenias* and the blue and white *Nemophilas*. *Uvularia grandiflora* is graced with drooping yellow blossoms, and several kinds of *Fritillaria* and the White Thrift (*Armeria cephalotes alba*) are likewise in flower. *Primula*

erosa, too, is still attractive, as are also *Ornithogalum umbellatum* and *O. balticum*, both of which are bearing large clusters of white flowers. At Kew, the tall flower-spikes of *Camassia Leichtliui* are very attractive, being thickly beset with large, creamy-yellow blossoms. *Pæonias* are now very attractive, especially *P. anomala* and *P. tenuiflora* and its varieties. *Aquilegias*, too, are flowering freely at Kew, as is also the dwarf, sulphur-coloured *Platystemon californicus*. Large beds of a dwarf yellow Wallflower, named Ware's Tom Thumb, are very showy. For border edgings, for banks, or for pot culture, this Wallflower is worth growing, on account of its remarkably dwarf habit and floriferous character. S.

DEATH OF JAMES BARNES.

ALL acquainted with the best of what we are now beginning to call the old school of British gardeners, will hear with regret of the death of James Barnes, which took place on the 23rd inst. at Exmouth, at the age of 71. He has lived there in retirement since giving up the charge of the famous gardens at Bicton. Of these he had the management for nearly thirty years, and, as many of our readers know, under his charge they were among the most richly-stored and best-managed gardens in the country, the arboretum being probably the richest, and the kitchen garden one of the best cultivated in England. James Barnes, when young, had much experience in the best London market gardens, and evidence of this was seen in the thoroughness of much of his work. Beginning life with very few educational advantages, he took an intense interest in the literature of his work, and was a constant contributor of readable practical articles to the press, including *THE GARDEN*, to which he gave his hearty support from the commencement. For a man who had no early advantage of travel to free him from prejudices, he to the end showed a singular freedom of mind in his determination to see anybody's practice likely to be suggestive, no matter where or by whom it was done. Thus, only a few years ago he made a long excursion round Paris, and examined the market and fruit gardens there with the greatest zest and interest. He was a close and constant observer of natural history, as shown in the lives of the birds and animals in the gardens and woods under his care, and contributed many instructive and interesting notes on those subjects to the "Field" and various other journals. It was interesting to those who had the pleasure of walking round the arboretum with him to notice that not a small bird showed itself on the boughs of the highest trees that he did not seem to instantly take notice of. So it was in the case of every other creature about the gardens or woods. Probably few of our readers will require to be told that he was the brother of William Barnes, who for many a day was considered the best plant grower about London. Like his brother, he was in early life blessed with a fine physique, and the story of his intelligence and energy was written in a fine face, like that of the stoutest type of Saxon, but lit up with a clear eye and the brightest intelligence. His success as a gardener, charm of manner, and pleasant writing are easily traceable to an inexhaustible stock of what, by an odd perversion of language, we are obliged to call common sense. The sad fact is that both the type of man (whose loss we now regret) and the sense are rare. James Barnes had gifts which, cultivated and exercised in other ways, would probably have made him famous far beyond what is possible in the walk to which his life was so conscientiously devoted. W. R.

Lime Juice and the Arctic Failure.—The failure of the Arctic Expedition is not due to any ignorance on the part of medical authorities of the main conditions essential to success, but to the deliberate disregard of such conditions by the commander of the expedition. The committee attribute the early outbreak of scurvy in the spring sledging parties of the expedition to the absence of lime juice from the diet of the men. The committee find that the provision made by the Admiralty in the way of food, medicines, and medical comforts was in every respect adequate for the performance of the special service in which the expedition was engaged, and was more complete than had been made for any previous Arctic Expedition. The means, in short, were all at hand for obviating the disease which is the great enemy of all such enterprises; but, by a lamentable failure of judgment, they were not used. Sir George Nares took upon himself to neglect the positive advice of the highest medical authorities of the Navy, even when it had been officially recommended to his attention; and his reputation and the health of his crews paid the penalty.—"Times," May 19.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Flower Garden.—The general stock of bedding plants, with the exception of a few of the most tender kinds, should now be planted out without delay. There is at least a difference of ten days between the southern and northern parts of the kingdom when it is advisable to bed out. A few fine days often tempt amateurs to put out tender plants before there is sufficient warmth in the ground, for even should no actual frost occur after they are exposed, if only a few nights come wherein the temperature falls near to the freezing point, it has a stunting effect upon them, from which it will take a fortnight's fine weather to restore them; and if the plants receive plenty of water and be well cared for in other ways, they keep on growing in their pots or boxes up to the time they are turned out. A few words as to the operation of planting may be of use to those who are not experienced in the mode of preparing the soil, &c., for the reception of such subjects as have yet to be planted. Where the soil is of a strong, adhesive nature, this season it requires double the ordinary amount of labour to break it sufficiently fine for the roots to enter freely; and it must be borne in mind that in the class of plants under consideration the ability of the roots to extend is limited, having to draw their sustenance from the soil immediately near them, and if this at the time of planting be left in a rough, lumpy state underneath, even though it is broken quite fine on the surface, the roots cannot penetrate these hard, unbroken clods, through which cause the subsequent progress of the plants will be comparatively slower; consequently, even where the ground has been previously well dug in heavy land it will be necessary to work it over again with the fork, thoroughly breaking all the lumps to as great a depth as the roots of the plants are likely to penetrate. In light soils there will be no occasion for this extra labour, but where the land is at all dry all the holes intended for the reception of the plants should be made considerably larger than is necessary for their roots, and filled up with water twice, so as to give the under surface a thorough moistening; when the water has had time to settle the bed may be planted. This operation takes a little more time in the first instance but saves much labour in subsequent waterings of the surface, while its effects in promoting quick and strong growth are much more effectual, especially if the surface be immediately mulched over with an inch or so of some fine non-moisture-conducting material that will check evaporation, for which purpose there is nothing equal in appearance to Cocoa-nut fibre; where this is not available, a good substitute will be found in well-decomposed leaf-mould or exhausted tan that has become quite black by exposure, and is reduced to almost a fine powder. These two latter, previous to being laid on, should be passed through a half-inch sieve, and the finer portion placed on the beds, to give them a neat appearance. As soon as this is completed, Verbenas, Ageratums, Heliotropes, and Petunias, or any plant of a straggling habit easily affected by the wind should at once be pegged down, or they frequently get broken or injured near the collar by friction with the soil; for this small hooked sticks may be employed, or what will be found equally as serviceable, pieces of hast about 8 in. long looped round the shoots, and the ends thrust down into the soil with a small dibble. Previous to planting out see that everything on which aphides will live is quite free from them, for, if there be only a trace of these insects on the plants, their subsequent destruction will entail a good deal of trouble; it is not well to be content with fumigating and killing the mature insects, as they will leave a quantity of eggs which the smoke will not affect that will produce insects in a few days, but which can be effectually destroyed by dipping each plant in Tobacco or Quassia water.

Kitchen Garden.—Embrace every favourable opportunity when the land is in a half moist condition to stir as deeply as possible betwixt growing crops with hoe or fork, without interfering with the roots; there is a twofold benefit arising from this operation—it checks the growth of weeds better than ordinary shallow hoeing, and to some extent it makes up for the unfavourable condition of the soil when sowing and planting were carried out this season, except in places where the land is of an exceptionally open nature.

Asparagus, Spinach, Beans, &c.—Asparagus has been unusually late this season, consequently cutting may be continued longer than usual; this in all cases should be regulated by the strength of the beds where the plants are young and not yet come into full bearing, and in old beds, where the plants are now, they should not be cut for so long a time as those that are in full vigour; but in most cases I should recommend the whole (large and small) being cut so long as the cutting is continued. Continue to sow Spinach once a fortnight; it is not advisable to put in more at each sowing of

this vegetable than will be required, as if not used immediately it is fit, it runs to seed in a few days during the hot summer weather; to avoid this as much as possible, sow thinly in rich ground. Where Broad Beans are held in particular estimation, another sowing should now be made; these late sowings, however, except in soil especially adapted to their growth, do not succeed so well as the earlier ones. Make another sowing of Dwarf French Beans, and also of Runners; the latter will come in after the first-sown, which in protracted summers sometimes become exhausted before the hard weather cuts them off.

Carrots, Parsnips, Leeks, and Onions.—Carrots and Parsnips should now be thinned, leaving the latter 9 in. or 10 in. apart in the rows; in the case of Carrots it is well to leave them at the first thinning doubly as close as they are ultimately to remain, about 4 in. asunder, every alternate plant afterwards being drawn for use when they have attained the thickness of a person's finger; so managed the general crop is not interfered with, and those that are used half-grown afford an acceptable supply during the early part of the season. A piece of ground in an open situation should now be prepared for Leeks. This vegetable, to be well grown, requires a soil deeply dug, with a quantity of manure worked in down to the bottom of the trench in order to supply its descending roots with abundant food. Where Leeks are grown in badly-cultivated and poor soil they are stringy in texture and hot, more approaching the character of Onions than when well-grown to a large size, which gives them the peculiar flavour so much esteemed by some people. They should be planted with a large dibble, making holes about 9 in. or 10 in. deep, putting the plants into these, and then dropping in an amount of soil just sufficient to cover the roots, but not filling the holes. By planting deeply in this manner it allows room for the stems to expand, and when ready for use they will be blanched up to the required height; give them water to settle the soil about the roots; they will need nothing farther through the season but hoeing betwixt the rows to keep down weeds. Make the rows 1 ft. apart, the plants standing 9 in. asunder in the rows. Thin out the principal crop of Onions, choosing a time when the soil is moist, by which means those that have to be removed will draw freely without disturbing the roots of those that are to remain. It is this season more than usually necessary to attend to this, on account of the plants being so backward that the time there exists for their coming to maturity is very short. Those required for pickling (unless they have come up very thickly) should not be thinned at all; if the plants touch each other it will tend to keep them small, in which way they are the most generally preferred.

Ridge Cucumbers.—Some slightly fermenting materials should be prepared now for Ridge Cucumbers: stable-manure and leaves are the best where available, a substitute for which may be had in Grass mowings from the lawn, weeds, the tops of greens that are running to seed, or garden refuse of any kind, mixed with some of last autumn's leaves if at hand. Choose a dry, open place in the garden exposed to the sun, open a trench 4 ft. wide and 10 in. deep; into this put the material, making it about 2½ ft. deep, rounding it off in a ridge at the top, on this place the soil that has been taken out mixing some rotten manure or leaf-mould with it, then turn out the plants, two or three together on the top in patches 6 ft. apart, covering each group with a hand-light, which must be tilted so as to give air in the daytime, and closed down at nights for a few weeks until the plants have got fairly into growth. Plant in two or three days after the material is put together, by which time the ridge will be slightly warm, there not being sufficient body to endanger its becoming too hot.

Celery and Small Salads.—Some of the earliest kinds of Celery may now be planted. When the trenches have been recently prepared and a considerable body of manure dug in, where the soil is at all of a light nature, the plants will succeed better if, previous to being put in, the trenches be made more solid by a slight treading down. Of all calinary vegetables Celery is the most moisture-loving, and unless the ground is more than usually moistened by rain, I have found it of the greatest assistance to the plants to give the trenches a thorough soaking before planting—not a simple watering, such as is generally applied to other crops, but a complete saturation of the soil. Where this is done the plants grow vigorously, and will keep on for many weeks (no matter how dry the weather is) without further attention. If grown in double rows insert the plants 1 ft. apart each way, if in single rows, 9 in. will be enough; previous to moving them from the nursery bed water sufficiently to moisten the whole of the soil about the roots; by this means they can be moved with little loss of root and attached soil. Small Salads and Radishes, where in continuous demand throughout the season, should be sown every fortnight.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

May 28.—Shifting some variegated Pelargoniums and Petunias, both double and single varieties, for the autumn decoration of the conservatory. Sowing Green Curled Endive between rows of Peas; also Curled Parsley, Rampion, and Cauliflower. Planting Stocks, Asters, Malope, and spring-sown Cauliflower plants into manured trenches; also Vegetable Marrows and Ridge Cucumbers, affording them the protection of handlights or mats by night, and slightly shading them from the sun by day. Refilling vases on terrace with summer-flowering plants. Cleaning herbaceous borders. Taking down coverings from fruit trees, and storing them away. Tying and staking Dahlias recently planted, to prevent them being blown about by the wind. Thinning spring-sown Onions, afterwards hoeing the ground between the rows.

May 29.—Potting Poinsettias, Pinks, scented-leaved Pelargoniums, and Heliotropes. Sowing American Red-top Turnips, Maize, Melons, and Victoria, Drumhead and Paris Green and White Cos Lettuces. Planting out Tomatoes in warm situations; also Early Cabbage, Lettuce, and Cauliflower plants that were raised from seed sown in the open air. Putting in Fuchsia cuttings, to furnish a batch of young flowering plants in autumn. Pricking out Celery plants in very rich soil, and keeping them well supplied with water. Removing Raspberries that have been grown in pots indoors to a sheltered border. Earthing-up Jerusalem Artichokes. Thinning Carrots and Parsnips. Washing Gooseberry trees with alum water to kill caterpillars, and syringing Peach and Nectarine trees with soft soap and Tobacco-water, to clear them of aphides. Placing Cinerarias that have ceased flowering, and from which cuttings are required into cold pits. Putting soil in Melon pits ready for planting.

May 30.—Potting Chrysanthemums intended for standards into 8-in. pots; also re-potting Heliotropes and Verbenas, and placing them in greenhouse. Sowing another crop of Scarlet Runners, Veitch's Perfection and No Plus Ultra Peas; also Parsley in well-watered drills, and Endive of sorts. Planting Stocks, Asters, and Lobelias on Vine borders, and Lettuces among Seakale plants. Pricking out Celery on rotten manure slightly covered with soil. Preparing Broccoli land for late Peas. Raking and otherwise cleaning rough shrubby borders. Cutting out dead Laurels, and removing overhanging boughs of trees and shrubs in pleasure grounds. Plunging outdoor pot Roses in a sunny situation. Thinning Plums, and nailing in leading growths of Peaches, Nectarines, and Apricot trees. Washing Odontoglossums and Saccolabiums; hoeing among kitchen garden crops, and weeding walks in pleasure grounds.

May 31.—Potting Zinnias, Delphiniums, and Lemon-scented Verbenas, and placing them out-of-doors. Potting-off seedling Cinerarias, herbaceous Calceolarias, Amarantus, and Solanums. Sowing Mignonette in 6-in. pots for indoor decoration; Red Globe Turnip, Cabbage seed for Coleworts, and a few pots of Legg's Melon. Planting Vegetable Marrows and Ridge Cucumbers on prepared ridges, and refilling conservatory baskets for the summer. Pricking-off Carnation cuttings and young Celery plants. Training Creepers on house-sides and on verandah. Thinning Malope. Dribbling in and watering Spinach seed where blanks have been caused in the rows. Re-arranging Odontoglossum-house. Watering Celery, Violets, Radishes, Turnips, and all seed-beds; also Dahlias that are planted out. Top-dressing Lillium auratum with sandy peat, and preparing more places for Vegetable Marrows.

June 1.—Potting off Celosias, Love-lies-bleeding, and Tree Carnation cuttings that are sufficiently rooted. Blocking Dendrobium Falconeri, and basketing D. Pierardi, Devonianum, and chrysanthum. Sowing Radishes and Mustard and Cress on well-watered beds; also Chicory, Syon House French Beans, Spinach, and another lot of Cucumbers. Planting Ferns of different kinds under Orchid-house stages, and pricking out young Chinese Primulas and main crop of Celery plants. Pulling up Wallflowers that have ceased blooming, and manuring and digging the land thus cleared for Stocks. Clearing up surplus bedding plants. Hoeing among Strawberry plants and afterwards mulching them with short Grass. Placing Primulas in cold frames, and shading them from the direct rays of the sun. Nailing the leading shoots of wall fruit trees.

June 2.—Potting Tropæolum canariense into 6-in. pots for the decoration of wire stands, baskets, verandahs, &c. Re-potting Dendrobium fimbriatum oculatum and Perestera elata, using for the latter a compost of loam, peat, sand, and manure. Shifting Balsams and Cockscombs into flowering pots. Planting Tomatoes under wall in sunny situations. Thinning spring-sown Onions. Watering Cauli-

flowers with manure-water; also outside Peach and Vine borders. Syringing Cherry trees and Roses infested with aphides with a solution of soft soap and Tobacco-water. Digging land for Myosotis, Wallflowers, and Daisies, and manuring and digging border for Cauliflowers. Hoeing among Cabbage and Onion plantations.

Hardy Flowers.

ANTIRRHINUMS.—The experience of the past winter has shown that old plants of Antirrhinums, left to flower the second year, have died through excess of moisture. It is wet rather than frost that kills many hardy plants. On the other hand, plants raised from seed sown in August last have stood unharmed, and will soon be showing bloom. If seed be sown in March and April, the plants will bloom in September and October. Seedling plants of the first year are always dwarfer in growth than plants kept over to the second year, and that is an additional reason for raising seedlings.

CARNATIONS AND PICOTEES.—Plants that are in large pots for blooming will need to have the growing stems tied to sticks. With few exceptions all shoots starting bloom besides the leading stems should be stopped, if blooms be wanted for show purposes in July. Green fly and spittle fly, as it is termed, are apt to become troublesome, and should be removed. During warm weather a free use of the syringe greatly conduces to the cleanliness, and consequently to the health and vigour of the plants. Plants in borders that are required only for flowers may be allowed to carry several flower-stems according to their strength. A top-dressing of good, rich soil is of great service during the summer.

CHEIRANTHUS.—The fine dwarf perennial forms of the Cheiranthus or Wallflower are now getting into fine bloom. *C. alpinus* has pure pale yellow flowers; *C. Marshalli*, which is said to owe its colour to a cross between *C. alpinus* and the annual *Erysimum Peroffskianum*, is of a pleasing orange hue; then there is the curious yellow and brown *C. Dillenii*. They are of dwarf growth, forming good tufts for rockwork and borders, and bloom with great freedom. Some attempts have been made to cross these with the common Wallflowers, and interesting results are obtained, but nothing as yet of an enduring character.

MARIGOLDS.—These should now be planted out in rich ground. In the mixed border they look best planted singly, and thus treated they make good bushy specimens. A little manure water given during the summer greatly assists the production of fine flowers. The double pot Marigold, or, as it is sometimes termed, the *Ranunculus Marigold*, is a showy plant, the large golden flowers of which are very attractive.

MIMULUSES.—Improved strains of these have very large and finely marked flowers, and in most cases these are associated with a bold vigorous habit. A cool-house is the best place for plants in pots, and if well looked after, watered, and occasionally syringed, they will keep effective for a considerable length of time. A pan of seedlings will give a succession of plants that will last all through the summer.

MYOSOTIS.—The frosts of the first week in May sadly cut back *M. dissitiflora*, but in a few days, assisted by rain and invigorated by sunshine, it was quickly in blossom again, and is now as gay as ever. It is a wonderfully free bloomer, and during the flowering season the plants throw out a number of lateral shoots which produce flowers. The blue, white, and rose coloured varieties of *M. sylvatica* are now getting gay, but they are considerably later than *M. dissitiflora*. The pretty *M. azorica* and the fine varieties raised from it used to be much more grown in pots for summer decoration than they are now, and very charming they were when well grown. A little trouble is, however, required to get the plants in good condition, and, indeed, they should have the treatment of a warm greenhouse till hardened off to bloom in a cool house. The charming little *M. rupicola* is beginning to show its lovely blue flowers from amid little tufts of foliage in pots.

PETUNIAS.—The plants intended to flower in the open ground should be got out into beds and borders at once, as the showery weather will give them a good start. As an invariable rule plants should be put out in the open ground with good balls of earth about their roots; and should it become shaken off in course of transplantation, some fine soil should be substituted in order to afford something to root into at once. Plants put out with but little roots and congenial soil about them, are very slow in starting into growth. The way to secure an effective bed of Petunias is by pegging the main shoots to the ground, and leaving the side shoots to produce a good surface of foliage, which should be pinched out occasionally to form an even mass. In this way a grand display can be had all the summer. Petunias are well suited for stone vases, beds, and baskets; as they hang down over the sides, and form an attractive floral

fringe. They are also useful decorative plants in pots; and when they are well grown they can scarcely be excelled among soft-wooded plants. The chief point is to get a good-shaped plant by keeping it pinched back until the desired form is secured, then it may be permitted to flower. The double varieties are, with but few exceptions, better fitted for pots than for the open ground.

SAXIFRAGA GRANULATA FL. PL.—This is a most useful hardy plant at this season of the year. Its growth is dense and tuft-like, and it flowers freely. A fairly light sandy soil suits it best. What a charming combination might be made of *Anemone fulgens*, *Myosotis*, and this Saxifrage, with an appropriate edging! One plant of this Saxifrage can be quickly increased to many, and it is useful in a cut state, as the flowers last a long time in water. D.

Forest Trees.

This season's bark stripping commenced here on April 27, being one day earlier than last year, which latter was a week or ten days later than the average time for commencing. The operation this season, too, was somewhat similar to that of last year, as regards the unfavourableness of the weather during the first two weeks. Keen frosty nights and north-east winds continued intermittingly from the commencement to the 9th inst; after that date, however, there was a change for the better—southerly winds and growing showers daily had a beneficial effect on the work, causing the sap to flow more freely and rendering the bark easier to peel off, thus somewhat compensating for the harsh weather at the commencement, and prolonging the season a few days. Bark stripping generally was finished in this neighbourhood on the 17th inst. From reliable information I am informed that Oak bark has advanced from 15s. to 25s. a ton throughout the country on last year's prices, in consequence it is said of Valonia having nearly doubled in price through the blockade of the Turkish ports, from which and other parts of the East this tanning material is imported—hence the reason of the rise in Oak bark. We sold our bark at an advance of 17s. 6d. per ton, the price being £5 for 21 cwt. put on the wagon in the wood; the price paid to the woodmen for taking off the bark, drying, and loading it on the purchaser's wagons, is 2s. per ton of 20 cwt. I hear that the annual sale of Oak bark in the New Forest realized about 21s. a ton more than last year, the sale averaging £6 12s. in the wood. In Shropshire in one locality the price has been, I am informed, 25s., and in Staffordshire bark has realized from £6 to £6 10s. per ton of 20 cwt. in the wood. The timber trade (home-grown) remains quiet, having been dull for the last eighteen months or more. Trees of large dimensions and of first quality only in demand at high prices.—*GEORGE BERRY, Longleat.*

SOCIETIES AND EXHIBITIONS.

MANCHESTER GREAT FLOWER AND FRUIT SHOW.

THIS great Whitsuntide display of flowers and fruits was acknowledged to be the best ever held in Manchester. Orchids, Roses, and stove and greenhouse plants were shown in profusion and in unusually good condition both by amateurs and nurserymen. In the amateurs' class of twenty stove and greenhouse plants, ten fine-foliaged and ten in flower, Mr. Edward Pilgrim, Cheltenham, was first. His best plants were *Tetratheca ericifolia*, *Croton Weismanni*, a marvellous *Cycas circinalis*, the grand, double, white *Azalea*, called *Flag of Truce*, and an *Erica* named *Victoria*, an English hybrid, and the finest plant of its kind ever exhibited. It was raised by the late Mr. Story, of Exeter, to whom we are indebted for so many charming hybrids. The second prize was won by Mr. Shuttleworth, Preston, who had *Croton undulatum*, a grand *Dendrobium nobile*, bearing no fewer than 500 flowers; a *Flamingo*-plant, with fifty or sixty flowers, and two or three magnificent *Gleichenias*. The third prize was awarded to Mr. John Rylands, Stretford, for, among others, *Erica Cavendishiana*, a grand *Alcassia Lowi*, and a beautiful *Areca rubra*. Of greenhouse *Azaleas*, there was only one collection, and that came from Mr. Broadhurst. In the class of twelve stove and greenhouse plants, six foliage and six in flower, the first prize was awarded to Mr. H. Samson, Bowdon, who showed a beautiful *Cocos Weddelliana*, the finest, perhaps, in the show; a remarkably good *Hedera macrotipifera*; a noble *Latania borbonica*; *Croton angu-titulum*, much better than usual, and a couple of *Gleichenias*. Mr. Shuttleworth, who was second, had a superb *Croton majesticum*; a very good *Erica ventricosa minor*; two finely grown *Gleichenias*; and a remarkably fine specimen of the *Flamingo*-flower, the serpent-like spades of which tell effectively against the gorgeous scarlet spathes. The only Heaths shown came from Mr. Pilgrim. Manchester has now for more than forty years been famed for its Orchids, a circumstance no doubt in part attributable to the wealth created in this busy haunt of commerce, but bearing testimony also to the good taste of those who grow them. The premier prize on this occasion for Orchids was awarded to Mr. O. O. Wrigley, Bury. It contained *Thunia Bensoniæ*, with twenty-five or thirty flowers; *Thunia Marshallii*; *Vanda suavis*, with seven great odoriferous racemes; an *Odontoglossum crispum*, with twelve clusters of white, lilac, and golden flowers; a marvellous group of

Masdevallia Harryana, *Cypripedium niveum*, and *Ada aurantiaca*; *Calanthe veratrifolia*, one of the most beautiful plants in the show; *Saccolabium guttatum giganteum*, with five grand rosy-lilac flower-spikes 20 in. long; *Anguloa eburnea*, quite a show of quaint ivory shell-like blossoms. Dr. Ainsworth, who was second, had *Phalenopsis grandiflora* finely in flower, the beautiful *Dendrobium crassinode*, a splendid *Saccolabium guttatum*, with nearly a dozen perfect racemes; *Odontoglossum Pescatorei*, one of the loveliest of its genus; an exceedingly good *Cattleya Mendeli*; *Vanda Denisoni*, bearing a couple of greenish-white racemes; and though last, not least, *Dendrobium Ainsworthi* and its rose-coloured variety. These two charming plants are hybrids, or crosses between *D. nobile* and *heterocarpum*. The third prize was awarded to Mr. Aders, Whalley Range, who showed some extremely beautiful plants, and among them a *Dendrobium Schröderi*, which looked like a white variety of *D. densiflorum*; an *Odontoglossum triumphans*, with twenty-five flowers, yellow blotched with bright cinnamon; the hybrid *Cypripedium Dominianum*, with fourteen flowers, and probably the finest plant of its sort in the country. Mr. Aders showed *Dendrobium Dalhousieanum*, and others. In the class of eight Orchids Mr. Wrigley was again first. His best plants were *Lycaste Skimeri*, *Dendrobium crepidatum*, *D. lituiflorum*, and a charming *Odontoglossum vexillarium*, seemingly ornamented with twenty-five pink butterflies, each about 2 in. in length. Mr. Joseph Broome, who was second, had a fine *Vanda tricolor*, *Masdevallia Veitchi*, a delightful *Lælia purpurata*, and *Aerides Fieldingi*, one of the most valuable of Orchids. Dr. Ainsworth, who was third, showed a noble *Vanda suavis*, with nine or ten racemes in perfection, the somewhat rare *Dendrobium Wardianum*, and some exceedingly good *Odontoglossums*. In the class of three Orchids, Mr. Wrigley was awarded the first prize for an admirable *Calanthe veratrifolia*, an *Anguloa Clowesi* with some thirty or forty yellow Tulip-like flowers, and a beautiful example of *Masdevallia Harryana*. Mr. James Fildes was second with *Dendrobium densiflorum*, bearing sixteen or eighteen rich, orange-coloured racemes falling away, as it were, from a mound of lively green. Mr. J. Taylor, Newton Heath, had a good *Dendrobium nobile*. Fine-foliaged plants and Ferns were well represented. For *Adiantums*, Mrs. Leech, of Stalybridge, carried off the first prize, and Mr. Shuttleworth, of Preston, the second. Filmy Ferns, which came from Mr. Ryland, Mrs. Leech, and Messrs. Standish & Co., consisted of *Hymenophyllum flexuosum*, *crispatum*, and *demissum*, *Trichomanes radicans*, and *Todea superba*. Messrs. James Dickson & Sons, of Chester, obtained the first prize for a pair of Tree Ferns with *Dicksonia antarctica*. Miss Pearson had a beautiful plant of *Osmunda cinnamomea*, and we also observed some specimens of the different varieties of the Lady Fern. Roses in pots were shown by Mr. Turner, Slough, and Messrs. Paul & Sons—Mr. Turner being first. Amongst his plants Paul Perras, Madame de St. Joseph, La France, Charles Lawson, and Miss Ingram, were in unusually good condition. From Messrs. Paul came very fine plants of *Souvenir d'un Ami*, Madame Margottin, Camille Bernardin, Madame Thérèse Levet, Victor Verdier, and others. The thirty Roses in 9-in. pots also formed an interesting exhibition, all the finest and newest sorts being represented. Of new plants few were exhibited which have not been already described. Among exhibitors of miscellaneous plants were Messrs. James Dickson & Sons, Chester, and Mr. Smith, Worcester, and we also noticed a group of *Amaryllises* from Mr. James Anderson, of Meadowbank. *Pelargoniums* and *Lilies* were shown by several exhibitors, and there was a good though small exhibition of fruit. A list of the prizes awarded in the different classes will be found in our advertising columns.

NOTES AND QUESTIONS—VARIOUS.

Lentils.—Will any reader of *THE GARDEN* kindly answer for me the following questions? (1) What are the present prices of Lentils per bushel, and per lb.? (2) Is there any way of restoring Lentils that have become damp and sour to their proper state? (3) In what way may they be prepared and cooked for human food.—A. X. A.

The Snake's-head Fritillary in Middlesex.—I have sent you flowers of *Fritillaria Meleagris*, gathered at Copped Hall, Totteridge, Herts, where it grows in quantities over a space of about two acres in the middle of the park.—EDWIN FASCOBERT, *The Nurseries, Fulham.*

Dewdrops on Vine Leaves.—I have noticed my Vines with a drop of clear fluid depending from the point of nearly every leaf. Will some of your correspondents inform me if this is dew, or a natural exudation from the leaves? My gardener tells me that he has observed the surface of the leaves quite dry while the edges were sustaining these pearly drops. The house was dry, and there are no signs of leakage.—J. H. W., *Faringdon.*

Barren Fruit Trees.—Can any one give me any information respecting fruit trees which I cannot induce to fruit? Eight years ago I planted four dozen, viz. Apples, Pears, Plums, and Cherries. The second year I had a little fruit from some of them; two years afterwards I had none. I have had them lifted twice and found the roots in good condition and no tap roots. Part of them form an orchard, and others are on wire espaliers, 6 in. from the wall, south and south-east aspects—the latter being Plums and Pears. I have never had any fruit except once from the Pears. The Plums grow vigorously until about the middle of August, when they appear to suffer from some cause or other. I have also two *Jargonelle* Pears, one at each end of the house; one has been planted about 30 years, the other 15 years. They cover a space of about 50 ft. by 40 ft., they have been spurred back, and are very symmetrical, but they bear no fruit, except here and there at the extreme ends of the branches. I have had them root-pruned twice. The subsoil is clay.—STOCKPORT.

Name of Plant.—T. P., Finchley.—*Diplacis glutinosus*.

Plant-lore of Shakespeare.—Would "Christine" kindly favour us with her address?

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FLOWERS AND SCULPTURE.

DURING the three days of the closing of the Salon a horticultural show was improvised in the garden space devoted to the exhibition of the works of sculpture, and the blending of the combination of the fine art of flower culture with that of marble carving has been so well, indeed so artistically managed, that the sculpture court is one of the prettiest sights in Paris; everyone is regretting that it is only to last three days. Large flowering shrubs were disposed at the angles so as to produce a charming background of various tones of green and brown to the statuary in their immediate neighbourhood, and in front ornamental-foliaged plants of lower growth, a great variety of the new white *Hydrangea* playing a conspicuous part. The *Caladium* family was splendidly represented, several new varieties being very remarkable, especially one with leaves of rosy-white nearly as transparent as glass, with rich carmine veinings, which become deep green at the edge of each leaf, named *Perle du Brésil*, and another *Louise Duplessis*, of various tones of rich crimson, most richly veined and mottled with velvety green; the collection of bronze-leaved *Begonias* was equally varied and fine. Among what horticulturists call florists' flowers the finest and most numerous collection was one of herbaceous *Calceolarias*, exhibited by M. Roi, the gardener of Madame Schachler, of Belleville, a truly noble representation of that attractive tribe, many of the new seedlings being of unusual size and of an exquisite symmetry both of form and markings. An exceedingly grand and almost exhaustive representation of the *Cactus* family and its allies occupied a conspicuous position. But to return to florists' flowers: there was a fair show of Zonal *Pelargoniums* (double and single), not show plants, but among them were some remarkably fine varieties, most of which however bore English names, a sign that we are not behind our clever neighbours in that branch at any rate:—A double white, *Aliee Sisley*, the flowers in the centre of the mass being deep rose; *Madame Anclie Baltet*, a very clear white, and fully equal to *La Perle des Blancs*, were admired by connoisseurs; *Madame Barroyer*, half double, rosy-vermilion; and *Guillion Mangilli*, a large-flowered, semi-double variety, of a deep cherry colour, forming a grand truss of great size, was evidently a great favourite. Among the scarlets *Delleport* was remarkable, having the largest and broadest-petaled flowers I have ever seen; *White Pelleport*, a grand pale scarlet; and *Duplessis*, a rich and extremely dark maroon-erimson, was a novelty in colour that is sure to be sought for. Among a tolerable collection of *Verbenas* *Azone*, a pale bright purple, with an extremely broad white eye, produced almost the effect of a *Primula*, and the same may be said of *Anais*, a very deep blackish-purple with an equally broad white centre. Among a selection of *Begonias* of the *Boliviansis* strain, was a grand, unnamed seedling, with flowers as brilliantly toned as those of the original parent, and twice the size of any I have yet seen; it is really a grand acquisition, especially if hardy enough for the open garden. The *Clematis* display, in comparison to our own shows, was exceedingly poor. A very extensive collection of hardy annuals and biennials was shown by the Messrs. Vilmorin, which attracted a crowd of enthusiastic amateurs and garden lovers. Among the conspicuous ornaments of the collection were *Kauffussia amelloides*; the dwarf yellow *Tagetes*, a veritable tuft of gold; the pretty little *Gilia liniflora*; the Giant White Candytuft; a grand variety of *Chrysanthemum Drummondii*, with flowers nearly 3 inches across, in fact, almost Sunflowers; and many pretty garden Grasses, especially *Lagurus ovatus*. The *Silene* group was chiefly represented by the maroon-calyxed *S. ruberrima*; but the gems of the whole collection were the symmetrically-flowered *Clintonias*, each grand tuft suggesting the idea of enamelled jewellery—this was evidently a lady's favourite, for in front of each tuft was such a dense group of lady admirers that amateurs of the sterner sex, even with such elbow

pressure as was occasionally attempted, had no chance of a near view. Messrs. Vilmorin had also a fine display of Japanese *Primulas*, several of which were remarkable for fine growth and grand trusses of flower; one especially, with blooms of richest crimson, culminating into dazzling carmine in the centre, was evidently appreciated highly by *Primula* fanciers. But to me, after all, the most attractive feature was the show of *Pansies*, the culture of which truly lovely flowers has been made a speciality by several clever cultivators in the neighbourhood of Paris and other parts of France. They grow nothing else—their flower domain begins and ends in *Pansies*; and the results of this concentrated energy directed to the culture of one genus and its varieties only are simply splendid: the enormous size of the flowers, nearly double that of the best English varieties, is not the only excellence attained; the immense varieties of colour, from nearly black and rich velvety brown, to tones of positive crimson, and through a series of pink tones to rosy white, are striking in the extreme; the markings, too, of some of the varieties are, florally speaking, of a truly grand character, the three lower petals being massively blotched with tones of colour differing from that of the upper petals, and sometimes all five petals equally blotched with the same colour. The French test of excellence does not appear to be mere flatness of face and circularity of outline, but size and symmetry of flower, sufficiently open for full display of colour, and above all, the tones of colour, among which the tints approaching crimson and pink appear to be very favourite ones. A *Pansy*-grower at Chalons exhibits a collection of striped varieties and no others, some of which are really splendid. Such a display as that of the flowers and sculpture of the art garden of the *Palais de l'Industrie* is rarely to be seen. I have been again and again; it is now closed, and the ordinary plant decoration with which the French never fail to heighten the effect of their exhibitions of sculpture is all that remains.

Paris, May 30.

NOEL HUMPHREYS.

FOXGLOVES IN THE WILD GARDEN.

WERE this not a common British plant, it would doubtless be oftener found in the shrubberies and borders of our gardens than it is; but too many condemn it because it is abundant in our woods and hedgerows. Of all wild plants few are more at home in the wild garden than the Foxglove; it reproduces itself freely from self-sown seed, and it is one of the most useful summer decorative plants for woods or other unkept places. It would be, however, a sad mistake to confound the Foxglove of the florists with the common *Digitalis* of the woods, for although the former does not differ from the latter in habit, yet, in a decorative point of view, it is far in advance of it; it has much longer spikes of flower, more variety in the way of markings and tints of colour, and the blooms are larger than those of the common Foxglove. Seeds of the Spotted Foxglove, sometimes called *Digitalis gloxiniaeflora*, may generally be bought true to name. They should be sown in a pan or box in a cool house or frame in May, and even if there be no glass at disposal it is best to sow them in that way, as the seed is so small that should it germinate during the night and get roasted up by the hot sun during the day, the young plants would be inevitably killed. Plants raised in pans or boxes, when well in rough leaf, should be pricked out in a shady spot and kept watered for a few days, but once fairly rooted they will need no further attention until the autumn, when they may be lifted and planted out in the borders. The Foxglove, being a biennial, flowers the second year, and the stronger the seedlings planted out the finer will be the blooms. The colours of the spotted forms of the Foxglove range from the purest white to deep red, the intermediate shades of pink especially being most pleasing; the spots or blotches are all placed inside the throat of the flower, and are generally purple, crimson, or maroon. On strong, robust plants it is not unusual to find spikes of bloom 4 ft. in length, almost rivaling the *Hollyhock* in stateliness and beauty. A by no means common Foxglove is *Digitalis lutea*, a true perennial, with foliage usually a pale green, and more pointed in form than that of the biennial section; the flowers, too, are smaller than those of the class just referred to, and of a somewhat dull

yellow colour, slightly spotted with brown. As a hardy border plant, which can be propagated either by division or by seed, it is well worth cultivation. Two years ago I endeavoured to secure a cross by hybridizing the flowers of this kind with pollen of a biennial variety, but out of the produce one plant only has given evidence of change that has the habit and robust growth of the spotted forms with the peculiar leaves of the *Digitalis lutea*; I therefore look forward with interest to its blooming, in the hope that a genuine hybrid has been produced. To those who have extensive woods or wild gardens under their care, it may be worth while to point out that it is possible to beautify these largely by the sowing of seed of the spotted Foxgloves indiscriminately here and there, especially in spots where it is likely a foothold will be obtained by the young seedling plants. Although it is possible that the kinds thus grown may degenerate in time, yet it is easy always to grow a few under garden cultivation, and thus yearly secure an abundance of seed to grow in the woods and keep the strain true.—A. D.

HARDY AMERICAN AZALEAS AT HOME.

Among the hardy foreign plants that have been domesticated in England is a group of flowering shrubs, somewhat allied in character, which have been imported from America, and given, on account of their distinguished qualities, the appellation of American plants. They are nearly all evergreen, and celebrated alike for foliage and flowers. An exception to this rule, however, is found in the hardy or Ghent Azalea, the leaves of which are entirely deciduous. The Rhododendron, from the frequent exhibition of its beauties in a most effective way, has attained quite general recognition, but the hardy Azalea, so well fitted to rival the charms of its relative, receives less attention. It is not, therefore, to be expected that the points in which it excels the Rhododendron should be properly appreciated. The term American plant is very judiciously applied, on account of the numerous forms assumed by *Azalea viscosa*, *nudiflora*, *calendulacea*, &c., in their haunts amid American woods and streams, but the species is really by no means confined to this continent. The single variety *A. pontica*, suggesting Mediterranean nativity, has attained a very extended employment throughout Europe, producing by cross-breeding, chance and otherwise, many of the finest yellow-coloured flowers. All the varieties of *A. pontica* are, however, ill-adapted to the climate of America, suffering more or less injuries in the bud from cold. This peculiarity of *A. pontica* explains certain complaints that are sometimes heard concerning an alleged defective hardness of Ghent Azaleas generally. Unquestionably the best forms are our native varieties, and few are finer and of sweeter odour than the large *A. viscosa* that grows in certain parts of the South. *A. nudiflora* is less beautiful, yet shows fine pink tints. It is very hardy, and plentifully distributed throughout the country. *A. calendulacea*, a native species with delicate orange tints, is also very hardy. As a late white variety of sweetest odour, nothing we know of can surpass *A. viscosa*, both for refined beauty and great hardness. It is quite desirable that the larger forms of this Azalea should be specially propagated. Amid the uncertainties attending the growth of many imported varieties, tainted as they may be by cross-breeding with *A. pontica*, it is important to know that we have among the hardy varieties of this country two forms in the *A. calendulacea* and *A. nudiflora* capable of producing the very finest combinations of colours—scarlet, crimson, and orange shaded on the same petal. It is strange that two or three simple primitive forms should alone make up the apparently endless varieties in the trade with their rich combinations of form and colour; indeed, if the Rhododendron may be termed the king of American plants, the hardy Azalea should certainly be the queen. Japan, from a flora specially adapted to America, is sending us the last and finest development of hardy Azaleas. They have been given the name of *A. mollis*, and possess the largest and most showily-tinted Azalea flowers yet seen. In landscape gardening the hardy Azalea may be effectively massed in groups by itself, or appropriately fringed about the outer edges of Rhododendron beds, producing a shading that relieves the more abrupt and larger outlines of

the Rhododendrons. For solitary prominent positions it is less fitted, needing some background for its slow growth and subtle colouring. Little pruning should be employed, and that only to establish the native and peculiar layer-like arrangement of foliage and twigs. The leaves have a bright cheerful green, except the *pontica* varieties, which acquire a rusty hue during midsummer. The roots are always fibrous, and very easily transplanted. In summing up the merits of this plant, we are constrained to claim for it at least equal rank with any hardy shrub grown in all the grand essentials of vivid, varied colouring, hardy, compact growth, and healthy, long-lived nature.—S. PARSONS, in "Country Gentleman."

Mr. J. Van Buren (of Habersham Co., Ga.), commenting on the above, sends some interesting notes to the same paper, Azaleas abounding in that part of the country. The forms of *A. calendulacea* grow here to the height of from 10 ft. to 15 ft., and are of every conceivable shade and colour, from the palest yellow up through golden to orange, and thence on to scarlet and crimson and variegated. They frequently cross with *A. nudiflora*, having some of the petals of a pink or rose colour, and the others of some shade of orange-yellow or red. We have one growing by the side of the porch of our house, some 15 ft. high, and 10 ft. or more in diameter, which annually has myriads of flowers. It is now in all its glory. I send you some flowers; one petal yellow, and four of a shade of scarlet. The scarlet and crimson varieties are probably the most beautiful, the colours being very brilliant. It is rather a difficult matter to transplant them successfully, as they have in their wild state very large, uncouth roots, caused by the annual burning of the woods, which kills the tops down to the ground. This does not injure the roots, which continue to grow and send up new shoots; but the roots have very few fibres. I have endeavoured to find young seedlings, but have never succeeded, nor have I ever known any one else to find any. They produce an abundance of very fine dust-like seeds, but I have never tried sowing the seeds. *A. viscosa* invariably grows on the margins of water-courses, where it can have its toes in the water. Its flowers are pure white and very fragrant, with the odour of Cinnamon or Cassia. It blooms in June, while *A. nudiflora* and *A. calendulacea* flower in April and May. *A. viscosa* frequently blooms twice in the same summer. At this time our forests are all aglow with the endless variety and brilliance of their colours, and as soon as their season is over Rhododendron *catawbiense*, *R. maximum*, and *R. punctatum* take their places.

Hybrid Primroses.—In connection with the enquiry of "W. T. B." and your reply thereto (see p. 392), I send you the following dimensions of an Oxlip, found by Mr. Little between Sevenoaks and Tonbridge during last week. Both Primroses and Cowslips were plentiful close by; and some of the Cowslips measured $\frac{3}{4}$ in. across the corolla. This Oxlip had three peduncles, varying from $6\frac{1}{2}$ in. to $7\frac{1}{2}$ in. in length, each having a truss of bloom at the top, in addition to which there were twenty-three stems, each about $2\frac{1}{2}$ in. long and each bearing a single blossom. One of the stems with trusses had eight flowers, another nine, and the third had twenty-two flowers. None of the blossoms were less than 1 in. in diameter, and one measured $1\frac{1}{4}$ in. across. The leaves were proportionately fine.—W. T. T.

Alstroemeria aurantiaca.—A patch of this in my garden has grown too large for its situation, and so I sowed another lot of seed, and dug up all the old roots, fondly imagining that I had utterly eliminated it, and to my dismay and annoyance it has now come up thicker and stronger than ever; every fragment of tuber must have grown. This is new to me, for I always imagined that this group of plants required a crown to grow from.—JOHN E. DANIEL.

Decoration of the New Edinburgh Vegetable Market.—At a meeting of the Public Parks Committee of Edinburgh Town Council last week Mr. M'Leod, superintendent of the city parks and gardens, submitted a sketch of a design which he had prepared for the decoration of the top of the new vegetable market. Mr. M'Leod proposes to place a number of vases on the projecting pillars, and to fill them with flowering plants during summer, and with evergreens in winter. Numerous garden plots are also to be placed on the roof, and the beds to be laid out in an artistic manner.

Hyacinthus amethystinus albus.—Some time ago a correspondent sent me a small parcel of seed of this lovely bulb; this year it has for the first time produced seven spikes of bloom, six of these are of the normal or blue colour mottled with white, and one only pure white; but from the foliage I rather fancy two, if not more, will another year prove white. I judge so from the circumstance of the one example now in flower being narrower in the foliage than the blue ones.—JOHN E. DANIEL.

NOTES OF THE WEEK.

A FINE OAK AND ITS INHABITANT.—Sir Charles Isham sends us from Lamport Hall the photograph of a very fine Oak there. It is 27 ft. in circumference at 4 ft. from the ground, and is very picturesque in form. It is the finest Oak within sixteen miles of Lamport, and is otherwise remarkable on account of its being inhabited by a fox, who makes his house net at the base, but 30 ft. up the stem of this giant tree. He runs up the stem from branch to branch and has a window as well as a hall door, through the former of which he may occasionally be seen peeping.

APRICOTS IN COVENT GARDEN.—We have for some years past been in the habit of receiving large importations of very small Apricots in May from Spain; they have hitherto been of a dry, woolly texture, and, as a matter of course, with little or no flavour; this year, however, they are of fair size, well coloured, and excellent in flavour. They are packed firmly in small wooden boxes, each of which contains about two dozen fruit. The best samples now realise from 3s. to 3s. 6d. per punnet of twelve fruits, or 6s. per box.

TWICKENHAM PURPLE STOCK.—While most people seem to prefer double flowers, many of them far from lovely in form, I am odd enough to prefer single ones, and among them I like this single Stock, because it is single, free, and hardy enough for walls, rocky banks, or the wild garden or shrubberies, and also because it has a fine Clove scent.—H. H.

ASPARAGUS.—Notwithstanding the great increase in the area devoted to Asparagus culture, it always remains a dear commodity, even when the quality is very inferior. The very finest large samples (mostly French) fetch nearly or sometimes quite 6d. per stick.

PROLONGING THE LILAC SEASON.—The harsh treatment Lilacs have received from the weather this year should turn attention more than ever to their culture in pots; nothing is more profitable. The smallest garden should have Lilacs in pots. It has lately been proved that they may be flowered easily in a room without the aid of a forcing house. In this way the season of these sweet flowers may be greatly prolonged, and the flowers are often better indoors in March than in the garden in a harsh May. The French sometimes work them on a dwarfing stock, one of the Privets.

MASDEVALLIAS IN MAY.—These easily-grown and charming Orchids, though nearly always in bloom, are never so beautiful as in May, when abundance of light and fresh air can be admitted to the plants. In a small span-roofed house in Messrs. Veitch's nursery may now be seen probably the finest display of Masdevallias to be found in the country. The plants are grown in pans and small pots, some of which bear no fewer than twenty-five to thirty blooms and buds; altogether there is in the house in question little short of 300 fully-expanded blossoms of the richest colours. M. Veitchi and M. Harryana are the chief kinds now in bloom, and the large, bright orange-purple-shaded flowers of the former contrast effectively with the varied rich, brilliant rosy-purple of the latter.—S.

THE HOOP-PETTICOAT NARCISSEUS AS A POT PLANT.—During the past week Messrs. Hooper & Co., of Covent Garden, have sent us a beautiful tuft of this species (*N. Bulbocodium*) growing in a 5-in. pot, and bearing twenty-five flowers. As to its beauty as a decorative plant there can be no question, and that it is not more frequently grown in pots as an "everybody's plant," or for market, is doubtless due to the difficulty that exists in obtaining bulbs of it. Few hardy plants rival this in brightness, and the golden colour of the flowers is heightened by the fresh tufts of green, Rush-like leaves amid which they so easily nestle.—B.

IRIS ROBINSONIANA.—This (the Wedding Flower of Lord Howe's Island) is now in cultivation in the Victoria Nurseries at Holloway. It is a gigantic species, attaining a height of 6 ft., with sword-shaped leaves in proportion, and large, pure white flowers marked with golden-yellow on the outer petals. The flowers are about 4 in. in diameter, and very evanescent, but as they are numerous and quickly succeed each other, the plant retains its beauty for a long time, and is said to be one of the most beautiful species. It is a native of Lord Howe's Island. Lovers of curious plants will be glad to add it to their collections, bearing in mind that it requires stove or warm greenhouse culture. We hope soon to hear of its flowering in this country.

CALCEOLARIAS AT READING.—The Calceolarias at Messrs. Sutton & Sons, Portland Nursery, Reading, are just now beautifully in bloom, and should be seen by all who take an interest in this class of plant. The strain is one of the finest, being the result of years of careful selection. Many of the individual flowers measure 2½ in. across, and are perfect in shape, and of almost every conceivable

colour. As to the plants they are marvels of good culture, averaging about 18 in. height and almost as much in width, and they may be counted by the hundred. They are not for sale, but for seed-saving purposes. The nursery generally, though but of small extent, is one of the best managed in the country, and is well worthy a visit at any period of the year, but especially so at the present time.—W. W. H.

FINE ENGLISH ASPARAGUS.—Some Asparagus has been shown us (grown by Mr. A. J. Harwood, St. Peter's Cottage, Colchester), which is by far the finest we have seen grown in this country. Mr. Harwood described his practice in THE GARDEN, at p. 477, Vol. X. The bunch above alluded to was shown at Colchester on the 24th ult., and was awarded a first prize.

GREEN PEAS IN COVENT GARDEN.—June 1 should always be looked to by the Duke of Bedford if he would not lose his Covent Garden charter:—"On Thursday a peck of Green Peas was sold in Covent Garden Market for 6d., agreeably to an ancient custom, the charter being held by the circumstance of selling at that price on the 1st of June."—"Morning Intelligencer," June 31, 1780.

BLUE FLOWERS IN THE MARKET.—The most effective blue flowers now to be seen in the florists' shops in Covent Garden are those of the Cornflower (*Centaurea Cyanus*). They are much used in bouquets amongst white flowers, to which their dark blue colour forms an effective contrast, and reminds us very much of a similar blue flower which is largely used for the same purpose in the autumn, viz., *Stokesia cyanea*.—S.

HARDY TREES AND SHRUBS AT KEW.—The tree growth at Kew is just now especially worth notice. Among flowering kinds the Judas Tree (*Cercis Siliquastrum*) is very ornamental, its nearly leafless branches being clothed with purple buds and flowers. The Red Chestnut (*Pavia rubra*) is another effective, early, summer-blooming tree, as is also its more stately relative, the Horse Chestnut. Rhododendrons are everywhere most brilliant, and Magnolias, double-blossomed Cherries, Pink and White Thorns, Laburnums, Wistaria, and Berberis Darwini are at their best.—B.

MADRESFIELD COURT GRAPE.—Fine examples of this excellent Black Grape are now exposed for sale in the Centre Avenue, Covent Garden, the produce of Vines grown at Isleworth; the bunches are of average size, the berries very large and covered with bloom, and for the time of the year perfect as regards colour. As a late kind this is considered by market growers to be of little use, as it does not keep well, but as a summer Grape it has for some time been considered the best kind brought to market, and in a very short time we expect to see it become almost as popular as an early variety as the Black Hamburg. Excellent as this latter kind is well known to be, the Madresfield Court, on account of its rich Muscat flavour and noble appearance, is greatly preferred by consumers of Grapes, and frequently fetches higher prices than any other kind.—S.

INJURIOUS INSECTS.—The Society of Arts has convened a special meeting of agriculturists for the 5th inst., to discuss the question of stamping out hurtful insects, which was raised by a recent circular from the Lords of the Privy Council to the different agricultural societies throughout the kingdom, in which circular certain propositions made by Mr. Andrew Murray were brought under notice. The Duke of Buccleuch has consented to preside, and the discussion is to be opened by the reading of a short paper on the subject by Mr. Murray.

A NEW PARK AT PAISLEY.—On Saturday last, the inhabitants of Paisley held a demonstration, on the occasion of the opening of a public park—a gift to the town by a deceased citizen, Mr. Robert Brodie. The park is situated at High Carriagehill, in the southern part of the town, and extends to about 22 acres. Its value is estimated at £16,000, and during the past year or two the Town Council have expended about £2800 in laying it out and ornamenting it.

GIFT OF A PARK TO FALMOUTH.—A great public demonstration took place the other day at Falmouth on the occasion of the presentation of a small but well laid-out park to the town by Lord Kimberley. An address was presented to his lordship, which, among other things, spoke of his services as a statesman. Lord Kimberley replied that he was pleased that he had gained the approval of his fellow citizens. He then referred to his gift of the park, and said that when sitting as a member of a committee in the House of Lords, he had heard witnesses assert that provision for innocent recreation would tend to check crime. He then handed to the authorities the deeds of the park, and said that, with the consent of the new proprietors, he intended to erect a lodge at one of the entrances. The park, which has been planted and beautified by his lordship, is picturesquely situated in Berkeley Vale, diverging from the town westward.

EARLY SOWING OF VEGETABLE SEEDS.

THIS season has afforded abundant proof of the disadvantage of sowing seeds of culinary crops out-of-doors too early. Beds of Leeks, Brussels Sprouts, Savoys, Cauliflowers, &c., were sown here during the first week of April, and the plants are in an equally forward and more healthy condition than the produce of beds sown with the same kinds of seeds early in March. This season has hitherto been exceptionally unfavourable for plant growth, and the advent of such permanent crops as Asparagus has been quite a month later than is usually the case. Taking the seasons generally, however, the first week of April is sufficiently early the seeds of the various varieties of the Brassica tribe and other culinary vegetables in the open air. True, our seasons are if anything too short for the thorough maturation of some crops; and consequently their seeds should be sown as soon as that operation can be performed with anything like advantage; and also on account of an undesirable interregnum, which it is necessary to avoid as much as possible between the autumn-sown crops of Cauliflowers, Lettuces, &c., and those sown early in spring, with the view of succeeding them. In the case of such crops it is best to sow a small portion under glass, on a slight bottom-heat, if that can be secured; or enough of such plants as Lettuces and Cauliflowers to keep up a continuous supply may be obtained by sowing a mere pinch of seeds in a pan or box early in March, and placing them in any heated glass structure. The young plants should be pricked out when large enough to be handled into other boxes or pans, gradually curing them to exposure in the open air, and in due time taking advantage of favourable weather to finally plant them where they are intended to produce a crop. Even Onions, Peas, Beans, French Beans, &c., are frequently sown too early out-of-doors, and portions of these might be treated as has just been recommended with advantage. The first supply of all such crops as Radishes and early Carrots should be sown under glass, on a slight hotbed composed of fermenting stable manure and tree leaves, so as to produce a slight amount of bottom-heat, which will be found sufficient for the purpose. Where this can be obtained by means of hot-water in the form of pipes or tanks, much litter and labour will be of course obviated. In all cases, however, where plants are raised from seeds sown under glass at an early period of the year great care is necessary to prevent etiolation, to obviate which air should be admitted on all favourable occasions, taking care to prevent the plants from being exposed to cutting draughts of cold air. The seeds of some culinary plants are naturally much longer in vegetating than others, a remark which applies to Parsley for example, the seeds of which will remain in the soil when at a low temperature for a considerable period without having their germinating powers in any degree deteriorated; the length of time, indeed, during which some seeds will retain their vitality is very considerable, especially when buried beyond the reach of atmospheric influences. The case, however, is entirely different where seeds are sown in the usual way, but at too early a period; under such conditions their vegetating powers often meet with many injurious checks, which too frequently result in the production of weak and debilitated plants, which are for a much longer period subjected to the attacks of insects and other maladies to which plants in a young state are liable than the produce of seeds sown when the soil is at a higher temperature, and when the early progress of the plants is consequently more rapid.

P. GUILVE.

Culford.

FRUIT CROPS NEAR LONDON.

A MONTH or six weeks ago the fruit orchards around Isleworth, Chiswick, and Kew, presented a beautiful appearance. The Pear, Plum, Cherry, and early Apple trees, were laden with snowy white or rosy-tinted blossoms, and fruit-growers were congratulating themselves that this year at least they would reap a rich fruit harvest. On visiting the Isleworth orchards, however, this week, we find that not only has the bloom disappeared, but the trees are left in many instances almost fruitless. Wall trees, espaliers, and standards have fared much alike, and especially is this the case with Pears. Large trees of the common Hazel Pear may be found fairly loaded

with fruit, but all the choicer sorts, such as Marie Louise, Williams' B'n Chrétien, Jurgonelles, &c., are a complete failure. Mr. Wilmot, who has upwards of 100 acres of fruit trees, states that he has never before seen Pears a greater failure. On long rows of espalier trees of the new Pitmaston Pear, scarcely more than a dozen fruit can be found. The common varieties of black Plums have fared a little better, but these have also suffered greatly in some places, and the more tender kinds will not yield above half a crop. Early Apple trees are a complete failure; but let us hope that the later kinds, which are just now in bloom, may bear a good crop. Cherries appear to have set pretty freely, but many of them have turned yellow, and will drop off. Morellos, grown as standards, are in some places well laden with fruit, which at present looks healthy. As regards bush fruits, Gooseberries and Currants under orchard trees are fairly well furnished with berries, but in open quarters these appear to have suffered very much from the east winds which we have so long experienced. Strawberries appear to be setting tolerably well, but they look stunted both in growth and bloom. Market gardeners, who are fortunate enough to have good vegetable crops under their orchard trees, will have some compensation for their loss, but people who are entirely dependent upon the fruit crop for a living will suffer severely this season.—C. W. S.

New and Rare Orchids.—In Messrs. Veitch's nursery at Chelsea may now be found several new Orchids, as well as some finely-flowered plants of older kinds. *Cypripedium Domini* is now furnished with five strong flower-spikes, each of which bears from three to five blossoms; this *Lily's-slipper* is a hybrid raised by Mr. Dominy, from a cross between *C. Pearcei* and *C. cordatum*, between which varieties it is intermediate. *Cattleya Skinneri alba* is a new variety now flowering for the first time; its flowers are of the purest white, and it promises to be equally as floriferous as the type. *Dendrobium Rhodostema* is also flowering for the first time; it is a hybrid obtained by Mr. Seden between *D. sanguinolentum* and *D. Huttonii*; its flowers, which are larger than those of either of the parents, have white, rich, purple-tipped petals and a delicate yellow throat, and when well established it will doubtless be found a valuable addition to our list of Dendrobies. *Vanda Parishii*, a rare plant, is likewise now in flower; it bears strong spikes of greenish, brown-spotted, cup-shaped, drooping blossoms, which are very powerfully scented; and a specimen of the better-known *Laelia Wolstenholmia* is bearing twenty-one very large and magnificently-coloured blooms.—C. S.

Churchyard Gardens.—Allow me to call attention to the efforts being made to render our once neglected churchyard (St. John's, Waterloo Road) a London garden. We have a row of trees some forty years old around the boundary walls—Planes, I believe—and we have recently removed all tombstones, levelled and turfed the ground, and laid out paths at an expense of some £100, raised entirely by voluntary subscription. Messrs. Waterer, Sutton, Carter, and others have given us valuable selections of shrubs and seeds, but we have room for much more. I would suggest that this is an excellent opportunity of testing the relative merits of the various kinds of town trees, and that we shall be happy to receive shrubs and young trees of any kind, giving them the specified attention which their donors may recommend. As this is an undertaking solely for the public benefit, and from which no one concerned will reap the smallest pecuniary advantage. I trust that any notice which may be taken of it will attract the attention of those who have suitable shrubs at their disposal, and that we may receive valuable assistance in furnishing our now empty beds. Whilst writing, I have to acknowledge the liberality of Messrs. Green, of Blackfriars Road, who have sent us a very useful lawn mower.—WALTER WOOD, Hon. Sec., 87, Waterloo Road, Lambeth.

Early Cabbage.—The following sorts have been, and still are in excellent condition, this season being more favourable for succulent, moisture-loving crops, than for those that delight in strong solar heat. Little Pixie and early York planted in it, apart from a sheltered border with a south aspect were very useful during February and March. And during April and May the following sorts on open kitchen garden quarters have been excellent, viz., Early Champion, Early Fulham, Early Battersea, and Enfield Market. These are all first rate sorts for general purposes.—J. GROOM, *Lebanon*.

Frame Potatoes.—The late frosts will necessitate the supply of new Potatoes being obtained from under glass or some temporary protection until quite late in June. Having tried several kinds of Potatoes under glass, I should still adhere to the Ash or Walnut-leaf type of Kidney for earliest bearing, as it produces a small quantity of haulm and tubers, and matures them quickly. But if time be not of importance or the crops intended for use during May and June, I find some of our old-fashioned second early kinds much more prolific and quite equal to the Ash-leaf in quality—a good number of even-sized tubers is preferable to extremes either one way or the other.—J. G.

THE LIBRARY.

GARDEN INSECTS.*

THE issue of a work on "Economic Entomology" by a Government Department is sure to raise among all interested in gardening operations, the questions—what can it tell us that is of use to us? and how is it that a Government Department has come to take the matter up? We will say a few words about the second question first, and it will be noticed that it is the outcome of work originated by horticulturists. As far back as 1868 the Royal Horticultural Society commenced the plan of

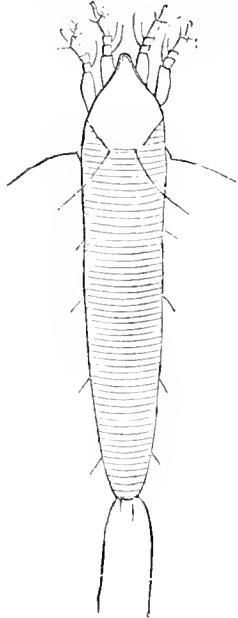


Fig. 1.—Phytoptus.

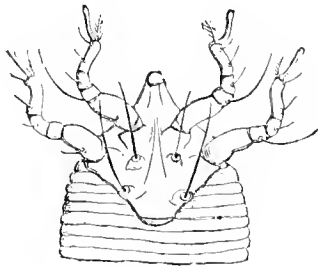


Fig. 2.—Head of Phytoptus.

preserving the specimens of Insect damage sent to its scientific committee in order to obtain its advice. They decided on making a collection that should be of practical use, including specimens of Insects that are injurious to horticulture and



Fig. 3.—Volvulifex Aceris.

agriculture, together with examples of the damage done, the object being to afford cultivators an opportunity of becoming acquainted with the appearance and habits of the enemies from whose ravages they suffered. The collection rapidly grew, and the Society applied to the director of the South Kensington Museum for room in which to put it; this was granted, and as

the collection still further grew, the Science and Art Department was found willing to take it altogether under its care, and so it was handed over. Grants of money for the development of the collection were made, and Mr. Andrew Murray, was appointed to the control of it, not on the staff of the Museum, but as scientific referee. The collection as it is now arranged is entirely Mr. Murray's work. The Department may justly be proud of it, for there is no collection, having the same objects, equal to it on the Continent or anywhere else. The Handbook is prepared by order of the Lords of the Committee of Council on Education, and it is stated that it is "the first of a series of Handbooks intended to serve in the first instance as guides to the different branches of the collection of Economic Entomology; and in the next place, as practical treatises on the subject for the use of the public generally." That is how it has come to pass that a work on "Economic Entomology" is brought out under the auspices of a Government Department.

Before speaking of the book itself, it will be well to say a few words about the collection to which it forms the guide; for although the work is amply illustrated with woodcuts so that it can be used by itself as a text-book, yet, for a practical acquaintance with the subject, there is nothing like a study of the collection itself. Mr. Murray's aim in his method of arrangement has been to give as much instruction as possible with the least trouble to those seeking it. His plan has been



Fig. 4.—Cephaloneon myriauleum on Maple leaf.

to use glazed frames, which are hung on screens as pictures. In the frames are not only specimens of insects and insect damage, but beautiful water-colour drawings from his own pencil, showing the magnified appearance of the objects exhibited. These drawings may indeed be almost said to constitute the collection, for without them its practical use would be but little. In scope the collection embraces the entire range of the ways in which Insects affect man in his material interests—the way in which they damage his industries and interfere with the comfort of himself and his domesticated animals, and the manner in which he can put them to a profitable use.

Now we turn to the question of the direct use of the collection and the book in relation to horticulture. Many of the cases are occupied with sections of branches and trunks of trees, showing the way in which timber is injured by boring insects; there are also illustrations of the ways in which leaves are damaged by Saw-flies and Gall-makers. Other suites of cases are occupied with objects which illustrate the damages to fruit trees, to our flowering and ornamental trees, to Cabbage, Potato, Carrot, and Turnip crops, and other garden produce. The Insects that do these damages are, for the most part, too small to be identified by the unassisted eye, and hence the great value of Mr. Murray's magnified drawings. It would be a useful plan for the Department to adopt to have the drawings copied by some of the most experienced students in its art schools, and to have sets of these distributed among the larger schools in agricultural districts. It may

* "Economic Entomology (Aptera)." By Andrew Murray, F.L.S. London: Chapman & Hall, South Kensington Museum Science Handbook, published by order of the Lords of the Committee on Education.

seem needless to urge again, since it has been so often urged before, that horticulturists and agriculturists should be trained in a knowledge of the insects that damage garden and field produce. Sixteen years ago Mr. Curtis, after a long experience, wrote as follows:—"It is a great mistake to suppose that scientific descriptions and correct nomenclature ought to be employed for the use of those only who are specially employed in the study of natural history. If insects

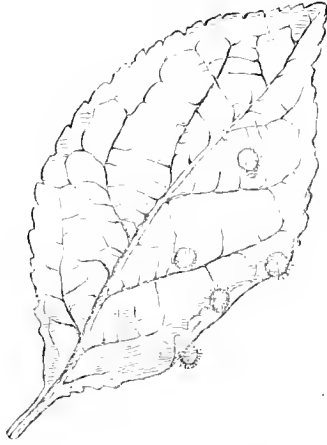


Fig. 5.—Leaf of Plum tree, with Galls of *Volvulifex Pruni*.

be not thus accurately and scientifically described, and their names carefully learnt, the facts noticed by practical observers are generally worthless, and may tend to mislead by the confusion of one species with another, and the consequent adoption of improper remedies. . . . A very large amount of the information given by practical agriculturists and gardeners has proved valueless in cases where, if the particular species alluded to could only have been identified, it would have been of great value in furthering subsequent investigations." These ideas have been urged over and over again, still nothing has come of all the talking and writing; "practical" gardeners remain as ignorant of the subject as they were twenty years ago. It is to be hoped that this collection of the Science and Art Department will prove



Fig. 6.—Twig of Plum tree, with Galls of *Volvulifex Pruni*.

the inauguration of a new era in the spread of this kind of knowledge connected with horticulture and agriculture. It is of little avail that the information is placed within the reach of the public in one London Museum; it must be spread far and wide. One most effective means of doing this would be through the schools of the country, where subjects are taught in connection with the examinations of the Science and Art Department. It is well known that the naturally observant habits of children can be turned to good account in teaching them about flowers and insects. The late Professor Henslow showed how easy it was to enlist the interest of children in the study of botany, and at the

Exposition des Insectes Utiles et des Insectes Nuisibles, held in Paris last September, there were exhibited from rural schools throughout France specimens of drawing books and copy books done by children, which contained sketches of those features of insects by which they might be recognized, with descriptions of their depredations and of their habits. If in England there were copies of Mr. Murray's drawings distributed among schools and a little encouragement given to the study, there can hardly be a doubt the children would take it up readily. It would add an interesting subject to their studies, and those who, when grown up have to do with gardens or crops, would be able readily to understand practical instructions how to deal with their insect-foes, and to give an accurately intelligible account of their own observations.

The volume of the Handbook issued contains only the Aptera, the other Orders having to be treated of in like manner in successive volumes, each of which is to be devoted to a separate Order. The present volume deals with the Myriapods, Spiders, Mites, Lice, and Spring-tails, and is profusely illustrated with woodcuts, some species of almost every genus being figured. Special attention has been paid to the Mites, and as no modern work devoted to them is in existence, it fills a blank that has long been felt. The description of the Gall Mites (*Phytopti*) that produce galls and witch-knots on trees, is a valuable contribution to the information of the horticulturist. Until a very few years ago the part that was played by these insects in making these monstrosities was only guessed at, and it is with surprise that we see the long list described in Mr. Murray's pages. These are a tribe of Mites, the largest of which are almost invisible to the naked eye, and the smallest almost invisible under the most



Fig. 7.—Section of Gall of *Volvulifex Aceris*.

powerful lens. They are named *Phytopti*, and, according to Mr. Murray, are to plants what Itch-insects are to mammals. He maintains that there is more than analogy between them; they have similar habits of life, the one irritating the skin of the mammal, the other that of the plant; they have both a transversely striated skin, they have both suckers instead of or in addition to claws on the tarsi, they have, like many of the Itch Mites, the posterior limbs atrophied and represented by a wart or hair, as may be seen in the more magnified cut of *Phytoptus*, besides other affinities. They confine their attacks to leaves either in the bud or developed; in the bud they produce first swelling and subsequently abortion, and it has now been satisfactorily proved that it is long-continued repetition of their attacks on the buds at the same place year after year that is the origin of the witch-knots that are found on Birch and other trees. It is these insects that destroy the buds of the Currant, the Hazel, and those of many other species of trees; they produce the Nail Gall on the Lime tree leaves, called *Ceratoneon extensum*; a smaller Gall on the Sycamore leaves (*Volvulifex Aceris*) (fig. 3); that on the leaves of the common Maple (*Cephaloneon myriadenum*) (fig. 4); that on the Plum tree (*Volvulifex Pruni*) (figs. 5 and 6); that on the Willow (*Ceratoneon Salicis*); and a host of others, for which we must refer the reader to Mr. Murray's book. From it we learn, too, an easy mode by which to distinguish a Gall formed by a *Phytoptus* from one formed by any other insect. Fig. 7 shows a section of the Gall of the Sycamore leaf, from which it will be seen, that while it is closed on the upper side of the leaf, it is open on the under side, and the inside is filled with hairs. Galls made by *Phytopti* have always an open entrance to it on the under or lateral side, which may indeed become narrow by the growth of the tissues, but is never obliterated.

Mr. Murray has adopted a zoological classification. It may be worth while to consider whether it would not be well to issue an index with cross references, following the plan adopted by Kaltenbach in his "Pflanzen-feinde," having a botanical classification, and referring to the particular enemies of each plant. Wherever remedies or methods of protection are known, Mr. Murray gives them, and in this lies the practical usefulness of the book.

There is one other subject connected with Mr. Murray's work on which we would say a few words. He has proposed

to the Department that arrangements should be made for united action in exterminating insects injurious to agriculture and horticulture. In bringing his proposal forward, there is one circumstance which has prevented his stating the case as forcibly as it otherwise might have been—he is not able to refer to statistics to show how great the annual losses are. We commend this fact to the consideration of those of our readers who are fond of statistics, and may have the means of compiling them in their own districts.

MYRTLES AS DECORATIVE PLANTS.

PERHAPS Myrtles have become old-fashioned; at any rate I do not think they are so commonly grown as they were years ago. To my mind they are—whether in flower or not—always beautiful, and the aromatic perfume given off by their foliage is at all times grateful and refreshing. Under even the most ordinary management they rarely get out of health, and they may be grown for years in the same-sized pots. The Myrtle is pre-eminently a cottager's plant, and when it gains a footing in a village or neighbourhood it travels from house to house in the shape of slips, until nearly every cottage window is furnished with a Myrtle. I have occasionally come across quiet back streets, mostly inhabited by working men and small shopkeepers, where Myrtle Grove or Myrtle Place would be an appropriate title, so numerous were they. I have one such neighbourhood in my mind's eye at this moment; for two years I generally passed through it several times a day, and I made the acquaintance of every Myrtle in the place, from the small stripling that was growing in the same pot with its parent, to the giant 6 ft. high that had to be placed in the back yard all the summer, and which cost almost as much care and anxiety in keeping through the winter as if it were really a member of the family, and I never now see a Myrtle in a cottage window without looking upon it as an index to the comfort and cleanliness within. Myrtles are very easily propagated; pieces of half-ripened wood, firm at the base, taken off with a heel and inserted in a pot of firm sandy soil, will root almost anywhere in a shady place. There is, of course, a certain degree of fitness in connection with everything, and plants that have made their growth in a low temperature are best propagated in a structure without much artificial heat. However, getting up a stock of Myrtles is so easy a matter that one need not refer to it at greater length.

In the decoration of the formal geometrical flower garden standard and pyramidal-shaped Myrtles might be introduced during summer with great advantage, and although there are but few places in this country where they would not require protection in winter, yet well-grown plants would be so useful for indoor decoration during that season that a stock of Myrtles of different sizes with their masses of green foliage would help to form backgrounds that would be very effective in ornamenting corridors, halls, &c. I once had charge for several years of a Dutch flower garden, very quaint and formal in its plan and keeping, and trained Myrtles, Pomegranates, and the small-leaved Oranges were largely used for summer decoration in vases, &c. Most of the plants had been used for the same purpose many years, and had been confined to the same-sized pots to suit the vases. The balls were one complete mass of fibrous roots, and might have been thrown about without a particle of soil falling from them; in fact, the soil was all consumed, and the plants must have subsisted chiefly on air and water—yet they were in perfect health. Of course, no one will suppose I am recommending the starving system for this or any other class of plants; I only mention it to show how very accommodating Myrtles are. But plants so treated seldom flower. A certain amount of annual growth is absolutely necessary for the production of flowers; and how delightful for cutting are sprays of Myrtle when thickly studded with pure white, sweet-scented blossoms! The most floriferous Myrtles I ever saw were two large, old plants nearly covering the back wall of a conservatory, and they not only flowered freely, but also fruited most abundantly. When grown altogether under glass the syringe or garden engine must be used freely on summer afternoons or evenings. Thrips are very partial to their hard, shining leaves,

and if this pest be allowed to become established on them, the beauty of their dark, glossy foliage will soon be destroyed, and the health of the plants will materially suffer. Any good loamy soil, enriched with about a third of vegetable matter, such as leaf-mould or peat, will grow Myrtles well; the pot should be well drained, as they delight in a good deal of moisture, but yet at the same time it must pass away freely. When large plants are required quickly for any particular purpose they will bear any reasonable amount of heat without injury, and in a close, moist atmosphere will grow very rapidly. Plants, with scented foliage, are likely to be in demand again, especially such kinds as can be cut freely from to mix with cut flowers.

In the arrangement of cut flowers in vases, like the arrangement of plants in groups or masses in beds, mere brightness of colour alone will not carry much weight with people of taste, unless the green setting of foliage be ample, and of a sufficiently lasting character. There are several varieties of the common or broad-leaved Myrtle, and I think two varieties of the narrow or small-leaved kind. There is also a variegated form that might be grown where variety is sought. In Ireland, and some of the milder parts of England, they will stand the winter in the open air, but, should the season be more than usually severe, they are likely to suffer to a great extent, unless placed in a very sheltered position.

E. HOBDAY.

HEDGE ROSE BUDDING.

It is no uncommon thing to find about most places some rough wild Briers in hedgerows or woods. There are two methods of converting these into Rose trees—the usual one of removing the stocks into the garden in November or December, and budding them in the usual way; and another method, that of budding them where they stand, and removing them at any convenient season, or even leaving them to bloom in their semi-wild state, which has many advantages. Supposing, for instance, that the best season for Brier planting may have been allowed to pass by; the Briers may be budded where they stand next June or July, and thus a season may be gained. Besides, the practice of budding within six months or so of the time of planting is no doubt very trying to the plants, and results in inducing a weakly habit, which is fatal to the vigour and longevity of the Rose. It seems almost certain that not a little of the disease, and many of the premature deaths, among Roses arises from the practice of budding on very imperfectly-rooted plants. The strength and vigour of the Brier shoots is no certain criterion of the size, number, or health of their roots. These shoots are more often than not the outcome of the fine roots left in the hedgerow than the natural produce of those of the current season. Hence, by the time the buds have taken, often before, there is a stoppage of supplies, an arrestment of growth, which stunts the Rose-shoot at starting or in mid-growth, and ends in permanent weakness, disease, or death. By budding Roses where they stand, in hedgerow, wood, or back of shrubbery, a good strong start is ensured. All the roots being intact, the buds take readily and grow at once, and a vigorous growth follows the first year. This is of far more importance than it may at first sight appear. There is probably not only a gain of a year's time, but one strong growth ensures another—many more. For as to growth, its character and strength repeat themselves and are far more an affair of habit than is generally supposed. Not only so, but a strong growth in Rose-shoots the first year produces strong roots the next, and these roots again find their necessary and natural expression in more, and it may be even stronger shoots the following season. If this be true, therefore—and it is—the importance of a vigorous start cannot be over-estimated, and one of the easiest and surest modes of obtaining it is by budding the Briers in the hedge-rows or places where they stand. A good many Roses might also be left in such positions with the happiest effect. The vigour and strength of Briers in a semi-wild state is marvellous at times. They seldom recover half their pristine vigour in the garden; but budded with choice Roses and allowed to remain, many of them grow with a freedom, and flower with a profusion quite unknown in Rose bed or border. In such positions, too, the plants may be left to ramble far and wide at their own sweet will. No severe pruning, no formal training should be allowed. Escaping from the knives as well as from hard and fast lines of form or size, some of the free-growing Roses, such as Gloire de Dijon, Maréchal Niel, Céline Forestier, Coup d'Hebe, Charles Lawson, Baronne Prevost, Madame Barret, and many others grow into large bushes, or run up the stems of trees, or throw out graceful sprays laden with fragrance

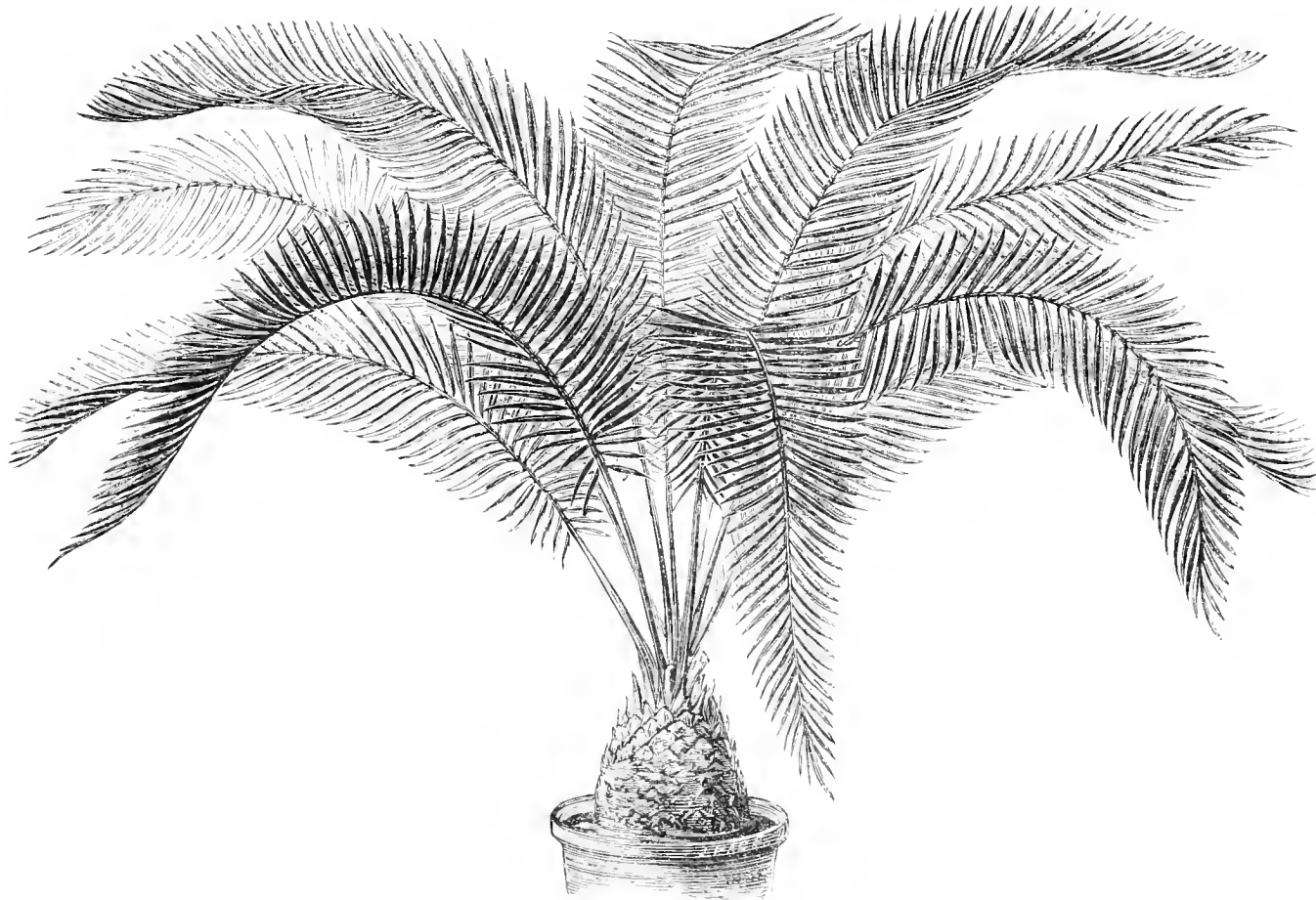
and beauty, far above the heads of shrubs or hedge plants, and impart a richness to gardens that nothing but Roses in a state of Nature can bestow.

D. T. FISHER.

HARDY FLOWERS IN LONDON GARDENS.

AMONGST hardy flowers now in bloom the most attractive are blue, white, and purple Columbines, *Papaver bracteatum*, with large orange-scarlet blossoms, common and Mount Peonies; blue, white, and purple Squills, and the beautifully scented double-flowered *Narcissus poeticus*; the blue *Iris germanica*, and the large, white-flowered *Iris florentina*, are just now at their best, and, where grouped together, they form an effective contrast. The stalwart flower-spikes of *Camassia esculenta*, clothed with bright blue blossoms, are strikingly

tinted blossoms, and *Romanzowia unalascensis* is loaded with white flowers. *Erpetion reniforme*, growing in moist situations, is bearing Violet-like blossoms in profusion, and *Globularia nudicaulis* is still in good condition. *Viola Delabordi* and *canadensis* are just now finely in flower, as are also some of the other kinds. *Sarracenia purpurea* is in bud, as is also *Podophyllum peltatum*. *Androsace lactiflora* is laden with pretty white blossoms, and *Erigeron bellidifolium* and its varieties are flowering abundantly. Alliums are still attractive; *Asphodelus luteus* and *A. albus* are both well furnished with large flower-spikes. *Ornithogalum*s are still in great beauty, and the purple flowers of *Muscari comosum* may be seen in abundance. To these may be added *Nothoscordum striatum*, *Aceranthus diphyllus*, and *Ranunculus*, all of which are very attractive. The beautiful rosy-purple flowers of



Cycas Normanbyana.

pretty, as are also those of the creamy-yellow-flowered variety *C. Leichtlini*, of which we spoke last week as being in flower at Kew. The Sea Thrifts, *Armeria maritima* and *A. mauritanica*, are producing numerous rose and white blossoms; and *Nepeta Mnssini* is also in full bloom; *Veronica gentianoides*, one of the oldest and best known of Speedwells, is laden with flowers, as are also the beautiful *Gentiana verna*; the bright purple-flowered *Dodecatheon integrifolium* and the white *D. Meadia* are blooming freely, as are also *Erodium*s and different sorts of *Geranium*s, notably *G. pyrenaicum*, *aconitifolium*, and *lividum*. Large plants of *Lupinus polyphyllus argenteus* are throwing up numbers of showy blue and purple flower-spikes; the Alpine Saxifrages are also very pleasing as seen growing on rockwork or on other raised positions. The dwarf *Dicentra (Dielytra) formosa* is now bearing pretty drooping rose-coloured blossoms, and the small bright golden flowers of *Milla aurea* are just peeping above the ground. *Houstonia cœrulea*, a compact-growing little Alpine plant, is producing numerous bluish-

Lynchnis viscaria splendens are now freely produced on gracefully-drooping stems, and various *Helianthemum*s are just coming into blossom, as are also *Pentstemon nitidus*, *P. confertus*, and *Collinsia bicolor*; the dwarf *Phlox subulata* and *P. Nelsoni* are still in great beauty, and associated with blue and white *Nemophilas* are very effective. *Platystemon californicum* is just now at its best, its creamy-yellow, Buttercup-shaped flowers being produced in great abundance. When the plants are grown in good soil on raised borders or to cover large stones on rockwork or similar positions, they are very effective.

***Cycas Normanbyana*.**—This fine ornamental species, as will be seen by the annexed illustration, has a habit somewhat similar to that of *C. circinalis*; the segments are numerous, contiguous, linear, about 6 in. in length, and $\frac{1}{4}$ in. in width, sharp pointed, slightly narrowed and decurrent at the base. It is a native of New South Wales, and has been shown in good condition by Mr. B. S. Williams, Holloway.



Nipeta Meyerii.



Achillea tomentosa.



Ornithogalum pyramidale.



Horminum pyrenaicum.



Rheum undulatum.



Vinca herbacea.



Cortusa Matthioli.



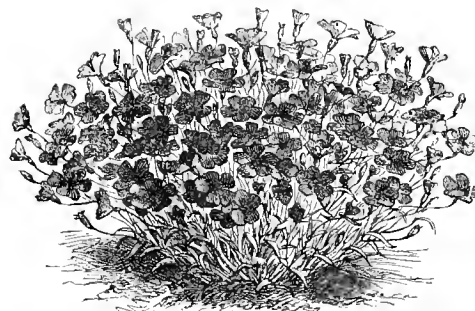
Geum chilense.



Achillea Clavenna.



Narcissus poeticus (Double).



Agrostemma Cœli rosea.



Lippia canescens.

THE FRUIT GARDEN.

EARLIEST AND BEST PEACHES FOR FORCING.

Most of us have at some time or other been puzzled to know the reason why Peach-buds drop; or, if they do not drop, why the fruits fail to set; or if they set, how it is they fail to go through the stoning process: all the usual preventives of such mishaps have been applied, and yet failure occurs no one knows how. I have my own opinion as to the cause of such disasters, but at present I only intend to say that certain kinds are more liable to such ills than others, and to name those which in my experience have proved the most trustworthy for forcing purposes. The three requisites particularly desirable in varieties of Peaches used for early forcing are—first, earliness; secondly, a good, hardy constitution, and a free-bearing habit; and thirdly, quality. In the first place, it may be observed that we are greatly indebted to Mr. Rivers, of Sawbridgeworth, who has, by hybridization, given us several varieties, which not only are certain fruiterers, but which are very early and, with but one or two exceptions, of fine quality. The first of these is Early Louise, a brightly-coloured, handsomely-shaped Peach of moderate size, and one which, with us, has never failed to fruit freely; its only fault is the tenderness of the skin, which makes it a bad Peach for packing. This variety and Early Beatrice are the two earliest kinds known, but of the two Early Louise is by far the best. Early Rivers is another good kind, which ripens a week or ten days after the above, and is, if anything, more delicious in flavour; it has, however, one fault, and that is, its stones are liable to split, which causes the fruit to ripen prematurely; such splitting, however, does not take place to any great extent, unless the tree is excessively cropped, which should therefore be avoided. Large Early Miguonne is another good forcer, and though not nearly so early as the above, it makes a good kind for succession, and is of large size, and extra good in quality. Early Grosse Miguonne must have the next place, it being one of the best midseason Peaches, and next comes Crisnon Galande, a trifle earlier than the preceding, but smaller in size. Dr. Hogg, Alexandra Noblesse, Magdala, and several others have all proved good forciers, but the above are the cream of our trials for early and second early houses.

W. W. H.

STOPPING AND TRAINING VINES.

So long as the Vine has room to grow and develop sufficient foliage to sustain vigour and fruitfulness, it matters very little indeed whether the shoots be stopped one or more joints beyond the fruit. I have tried all ways—sometimes stopping the shoot close to the bud itself; but I never could see that there was the slightest difference in the swelling and ripening of the berries. It is essential, however, that every shoot be well furnished with as many leaves as can well be exposed to the light and air, and anything more than this is injurious. The first-formed or oldest leaves are always the best, and every effort should be made to keep them green and healthy till the fruit is quite ripe, after which they will take care of themselves, the temperature being generally lowered after that date. With these objects in view the Vine grower must, of course, be early on the alert in thinning out the shoots and stopping them, so as to drive the strength of the Vines into the shoots which are to remain. First of all he should thin out the shoots to 9 in. or 18 in. apart on each side of the rods, according to their vigour; next, he should stop them one joint or two beyond the fruit, or five or six joints from their base; and afterwards he should keep them stopped till the end of the growing season, by periodical pinchings. It is the growth and maturing of the leaves that sustain the vigour of the Vines, and do most towards perfecting the fruit and providing for future crops, and a just appreciation of this fact is of the utmost importance to any one who has the charge of them. If Vines be in a tolerably vigorous condition, they will of course go on producing foliage, even should they lose their first leaves by insect attacks or otherwise; but the later-produced leaves cannot altogether compensate for the loss of the former. In tying in the shoots, they should not be bent backwards or downwards to the wires, but trained slantingly upwards, for the sake of giving them greater freedom. Good foliage once produced, the next thing is to preserve them in a healthy condition, to accomplish which it is only necessary to prevent scorching and keep down insects. Scorching will not occur from any cause if a little air be always admitted back and front, and increased, as the weather may necessitate, during the day; and insects—that is, red spider and thrips—will be checked also by healthy treatment more than anything else, because they never make much headway on good, strong foliage; but if they do gain a footing, they must be destroyed or dislodged by the syringe and the application of insecticides. The root culture of the Vine during the summer is

very simple, and consists in mulching the border with slight rotten manure to prevent drought—the surest cause of spider—and supplying copious waterings if there be the least reason to suspect that the roots are dry. If the Vines be well drained, gardeners have seldom time to give their Vines too much water; but they often give them too little in dry seasons. Liquid manure may be given freely, as may also guano, soot, stable-yard drainings, in a diluted state, from the time the Vines begin to grow till the fruit commences to colour, or even later.

J. S.

FRUIT TREES IN POTS.

WE have here a society, the object of which is to encourage good kitchen gardening and hardy fruit culture amongst cottagers by means of prizes and the distribution of fruit trees as presents or at wholesale prices, and it is gratifying to observe that already many of the sheltered gable ends of cottages and other walls of which no use whatever was made only a few years ago, are gradually becoming clothed with Pear, Plum, and Cherry trees, and yielding their owners a remunerative return, while the old-fashioned espalier is again becoming as popular as its merits deserve; for, either on the ground of economy of space, or facility for protection, no form of training is more worthy of recommendation; I must confess, however, that from my own experience, and that of many others, I see no prospect of the golden dreams of profit held out by those who advocate fruit tree culture in pots ever being realized. I will readily acknowledge that growing fruit trees in pots is an interesting pastime in the case of amateurs, who, as a rule, buy both their fruit and experience dearly, but cottagers are in a very different position; they look for definite returns for the outlay of their usually hard-earned surplus cash, and to buy trained fruit trees fit for the purpose, and pots and mats, &c., would require stronger imaginative power as regards the El Dorado of fruit culture than most of them at present possess. The culture of fruit trees in pots on the orchard-house system has not made much progress of late, or fulfilled the high expectations formed respecting it a few years ago, and certainly the balance would be all against trees treated in the manner described in THE GARDEN (see p. 391), for the cost of protecting material would in a few years equal that of a glass roof, and to lay trees on their sides exposed to alternate frosty nights and bright sunshine during the day, would certainly prove a trying ordeal, for which the protection of a mat at night would be but slight compensation. I should, from my own observation of Pear crops, consider Mr. Rivers' conclusions of the safety of his crop to be rather hastily formed, for although no visible harm may have ensued at present, it is not until the fruit-room shelves begin to look pretty well furnished, that growers who have to supply large quantities of fruit feel confident of success; and that this will ever be the case from trees grown in pots, is much question. We have no pot trees here except Vines and Figs, but bad as the season has been, I feel confident of a fine crop of Pears on walls and espaliers by the old-fashioned means of protection that have been employed for years.

Henham.

JAMES GROOM.

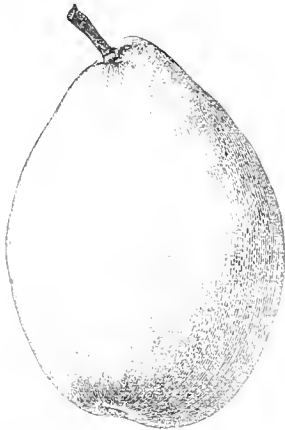
May Frosts and Fruit.—The frosts from May 3 to May 10 have made sad havoc with the earliest of the fruit crops. The thermometer on the morning of the 1th indicated 10° of frost, and from the 3rd to the 10th it has shown from 5° to 10°, the wind being east by north-east until the 10th, when it changed to the south, and at noon we had thunder accompanied by a heavy fall of hail and rain. Apricots are considerably injured. Several very old Pear trees on east walls, which were in full flower a month ago, and which promised to bear a heavy crop, have suffered greatly. The same fate has befallen several trees in orchards. Two very old White Heart Cherries on a west wall, which were in full flower on April 28 and which had set a large amount of fruit, are now quite black. The earliest Plums are in the same condition. Apples are now fast opening their bloom; in fact, an old pyramid of the Quarrenden had a great many of them expanded before the frost set in, and they suffered very much. Gooseberries and Currants have escaped tolerably well, more especially Red Currants.—J. CLEMENTS.

Canary Islands Bananas.—At p. 393 there is a short notice of the Bananas now offered for sale in London. Will you allow me to supplement your remarks by stating that the finest Bananas are not grown in Madeira but in the Canary Islands, considerably further south. To those who have tasted them in both places there is no comparison between the fruits, those of the Canaries being much larger, fuller, and finer. Unfortunately but few have found their way to this country, owing to communication not being so frequent, but a short time ago some bunches arrived in good condition, and fetched good prices, and I believe efforts are being made to keep the

market supplied with them. But it is difficult to bring them even from Madeira in good condition, as the sea air blackens the skin and arrests the natural progress to maturity. Bananas, it should be remembered, are always cut green and never ripen on the tree, which dies down, or is cut down after the bunch of fruit is removed. They are propagated by means of the suckers which rise round the root of the fruiting plant bearing them.—J. A. S.

TWO USEFUL PEARS.

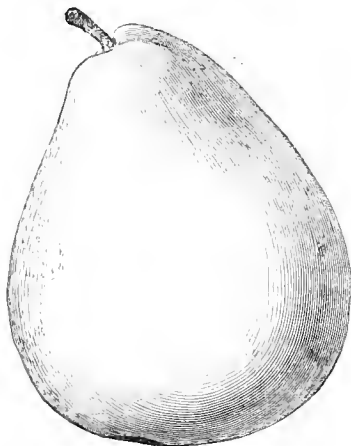
Vauquelin.—Our trees of this variety, six in number, were obtained in the form of cordons from the late M. Van Houtte's nursery at Ghent; three of them are grown as cordons on a south wall, and the others have been allowed to grow in the shape of bushes, a



Vauquelin Pear.

form for which this variety seems best suited, as those trees fruit with greater regularity than those on the walls. They bear very large, handsomely-shaped Pears, which are bright straw-coloured when fully ripe, with a tinge of suffused red on the side next the sun. Though not first-rate in flavour, this variety is in that respect superior to many much more generally grown, and it has the advantage of many others which ripen at the same period, viz., beginning of November, of remaining in good condition for a long time after being fully ripe.

Beurre Bachelier.—This is one of the very finest of the many good kinds of Pears. I class it with Marie Louise, Doyenné du



Beurre Bachelier Pear.

Comice, Beurre Hardy, and Winter Nelis, as being equal in flavour to any of them. It is very large, and in outline and shape may be described as a large Thompson's, and it is a good sort to succeed that fine variety, as it ripens about a month later, its season being from the end of November to the middle of December. It is a sure and prolific bearer, and, like the preceding, does best grown in the form of a bush or pyramid.—W. WILDSMITH, *Heckfield*.

COVERING EARLY VINE BORDERS.

I FEAR that, however long Mr. Simpson and I may discuss this subject, we shall never agree. He says his views in reference to the matter are based on experience; mine, though at variance with his, also rest on the same ground. At one time I was a strenuous advocate for heat applied to the roots of all plants, the leaves and branches of which were under a like influence; but subsequent experience has convinced me that in respect to early Vines it was unnecessary. Mr. Simpson admits that he is perfectly well aware that Grapes can be grown, even though the conditions he names be not strictly conformed to. The subject admits of no qualification, no half-measures. He advocates the use of fermenting material, I advocate simple protection; and I have thoroughly satisfied myself that as good early Grapes can be grown without the use of fermenting material as with it, not for a single season alone, but for a continuance; and totally independent of my own experience I have continually confirmatory evidence in the practice of others. Within two miles from where I write are a couple of large Vineries in which the fruit is ripe the middle of this month, and they are forced yearly to come in at the same time; they have some inside border, but from the condition it is in there evidently cannot be many roots in it; they have, however, plenty of room outside, yet on this outside border, neither on this nor on any previous season, has there been anything used, not so much as a particle of non-heat-conducting material. On a season like the present, after such an exceptionally wet autumn and winter, with the ground consequently colder than usual, if fermenting material were ever necessary, it has been during this winter, and yet I very much doubt if, for size of both bunch and berry, perfection in colour and bloom and weight of crop, there are two houses in the kingdom that surpass them, and this is their yearly condition under the same treatment. The Grapes are grown for Covent Garden market, where there is none that excel them, and few that equal them. This is only a solitary instance amongst many that I could quote in favour of my opinion. If Mr. Simpson require stronger evidence than such as this, I do not know how he is to get it. His memory serves him imperfectly when he states that I did not publish my views on the subject when there was so much discussion about it. I presume he alludes to the early part of the winter, unconscious of the fact that it was an article which I wrote in a contemporary in reference to something advanced previously on the subject that was mainly instrumental in starting the question. My reason for not taking further part in it was simply that a severe illness prevented the possibility of my doing so—even so far as to make clear what I had advanced—inasmuch as some were under the impression that in the details which I gave of my experience in the use of fermenting material on Vine borders, it had heated to excess—which was not the case. As to the long and exhaustive experiments which I have made in reference to the use of bottom-heat to plants which are usually subjected to it, I can assure your correspondent that it has been through no disposition on my part to keep anything relating to gardening matters secret, that I have not given them fully. The subject is a highly important one, and to make myself fully understood, it is necessary to treat it to an extent that continual press of other matters has never yet given me time to do.

T. BAINES.

Peach Setting.—Success as regards setting Peaches depends upon having an abundance of fibry roots in a firm, porous, and healthy, well-drained soil, thoroughly ripened wood, and a healthy atmosphere maintained the whole time during which forcing is going on, by judicious ventilation and an even temperature, making use of fire-heat only as a necessary evil. Under such conditions I never experienced any difficulty in securing an abundant "set" in January or even at any other period. In order to encounter every difficulty one has only to allow the roots to occupy a cold, undrained, unhealthy soil, which may have been poisoned by overdoes of manure, either solid or liquid. The wood under such circumstances is sure to be unripe and full of pith, conditions which favour bud-dropping whenever the sap is in full motion. Peach and Nectarine trees should only be permitted to bear a light crop the season after planting, gradually increasing the quantity each year till the trees are fully established. I have planted trees in July, and gathered good fruit from them the following June, and for nine years afterwards they bore excellent crops, and were then in full vigour. Last season I was about to plant a number of Peach trees in two houses in April, but the structures were not ready to receive them. They were firmly potted in large pots, and placed outside against a low wall, to be out of the way of the builders. In August they were turned out of their pots and planted permanently. The soil was rammed firmly round the roots, the points of which were laid out in the fresh soil, a soaking of water was given, and growth continued for a month or more, when

the shoots became brown and hard. The foliage was strong and healthy. About the new year the trees, which had been pruned in October, were allowed to have the ventilators closed at night, and in February early closing, with sun-heat, was practised, but there being no frost no fire-heat was given. The flower-buds were regularly thinned, and all left set, and the whole of the shoots were loaded with fruit, which is now thinned to 12 in. apart, and we expect (judging from the foliage) some fine fruit at the end of June.—M. T.

The Morello Cherry.—Whatever may be the effects of the recent frosts upon the sweet Cherry crop, it is apparent that standard Morello Cherry trees will be heavily loaded. This Cherry seems to be less affected by frost than other kinds, and its comparative immunity in this respect doubtless arises from the pendent or drooping character of its branches. As a standard it is singularly handsome, and on that account deserves a higher place than is commonly assigned to it amongst decorative trees. But beautiful and floriferous as it is in spring, it is even more ornamental during summer when laden with its rich, red crop of fruit; the latter, owing to its tartness, is not so much sought for by birds as that of the sweet kinds. Morello Cherries generally realize good prices in the market, where they are usually sold in baskets containing a dozen pounds.—A. D.

May and Late Duke Cherries.—These two useful Cherries should have a place in every garden; for, by having trees of each variety on walls or the warmest and coolest aspects, a succession of excellent dessert fruit may be obtained as long as Cherries can be said to be in season. These kinds, too, have another advantage, and that is, they require scarcely any pruning in order to induce fruitfulness, as they form naturally fruit-buds and spurs on the current year's wood, and with a little pinching in summer, the winter pruning may be almost entirely dispensed with. As a succession to the supply from walls, these varieties are extremely useful trained as dwarf bush trees, and if well pinched in they may be grown as close together as Currant bushes and be quite as fruitful. Grown in this way they can be readily protected from spring frosts or the attacks of birds by means of fish nets, which should be securely fixed before the fruit changes colour. The Late Duke is exceptionally late in flowering; some trees of it on a north wall are only just expanding their bloom, while Morellos and other late varieties are in full flower. The black fly is a great drawback to successful Cherry culture; therefore, as soon as it is observed, the points should be dipped in Tobacco water, and in a short time afterwards the whole tree should be well washed with the garden engine. When grown as a wall tree the fan system of training Cherries is decidedly the best.—JAMES GROOM, *Henham*.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Black Ants and Peach Blossoms.—If these pests had attacked "W. W.'s" Peach blossoms (see p. 352) with the same energy which I have seen them exercise on several occasions, I question whether he would have found the "saucer-of-water ears" effectual or easy of application. As regards the fertilizing of Peach and other fruit blossoms in houses from which bees are excluded, I should place more confidence in a camel-hair brush than on any number of ants. Some, like "W. W.," credit them with the destruction of insect pests, but I am of opinion that they are active agents in conveying them from one plant to another.—JAMES GROOM, *Henham*.

Fig Trees in the Midlands.—The Rev. Canon Angles, Barnack Rectory, has a Fig tree which occupies one side of a south roof. For twenty years past it has never been either pruned or nailed, and the crops which it bears yearly are simply enormous. Another reverend gentleman in this quarter (Stamford) has one of the same variety that overtops the wall from 5 ft. to 6 ft., and which I have repeatedly seen laden. Fig trees under the rule-of-thumb system of culture certainly bear fruit, but not with such freedom as the naturally grown trees. Three years ago I felt determined to try a similar plan, and am thankful to say with the best results. This season the promise is so good that I have treated the young shoots with a tie to the wall and main stems.—R. GILBERT, in "Gardeners' Chronicle."

A Large Orange.—An Orange grown by Mrs. Brewster, of Paradise Valley, California, while growing had to be suspended in a net bag in which it is yet shown. The two circumferences cutting each other at right angles, measure respectively 24 in. and 23 in., while the weight is 4 lbs. A Californian paper in noticing this fruit says:—"This Orange is considerably larger than the Pumulo Orange grown at Riverside recently carried to San Francisco by Mr. Caldwell. The latter weighed 3½ lbs., and its two circumferences measured 24 in. and 22 in." [The fruit here mentioned is probably the Pommefoe now often seen in our markets, and which is more delicate in flavour than the orange.]

New Early Peaches.—As many are anxious to know how the early Alexander Peach is succeeding in various sections, we ("Gardeners' Monthly") append the following, taken from letters handed to us:—Mr. Chas. Downing says:—"The Asnden's June, Honeywell, and Alexander, were all worked on the same tree, and though we could see by the leaves they are distinct kinds, ripened together, and if the fruits were all placed on a dish, no one could select one from the other. Early Beatrice is too small. These are the best early Peaches of fair size." Dr. Watt, of Niagara, Ontario, reports that in that high northern region the Alexander ripened on August 8. Mr. W. P. Robinson, of Atlanta, Georgia, went to Palmetto, fifty miles, to see it in fruit and does not regret the journey.

PLATE LXXVI.

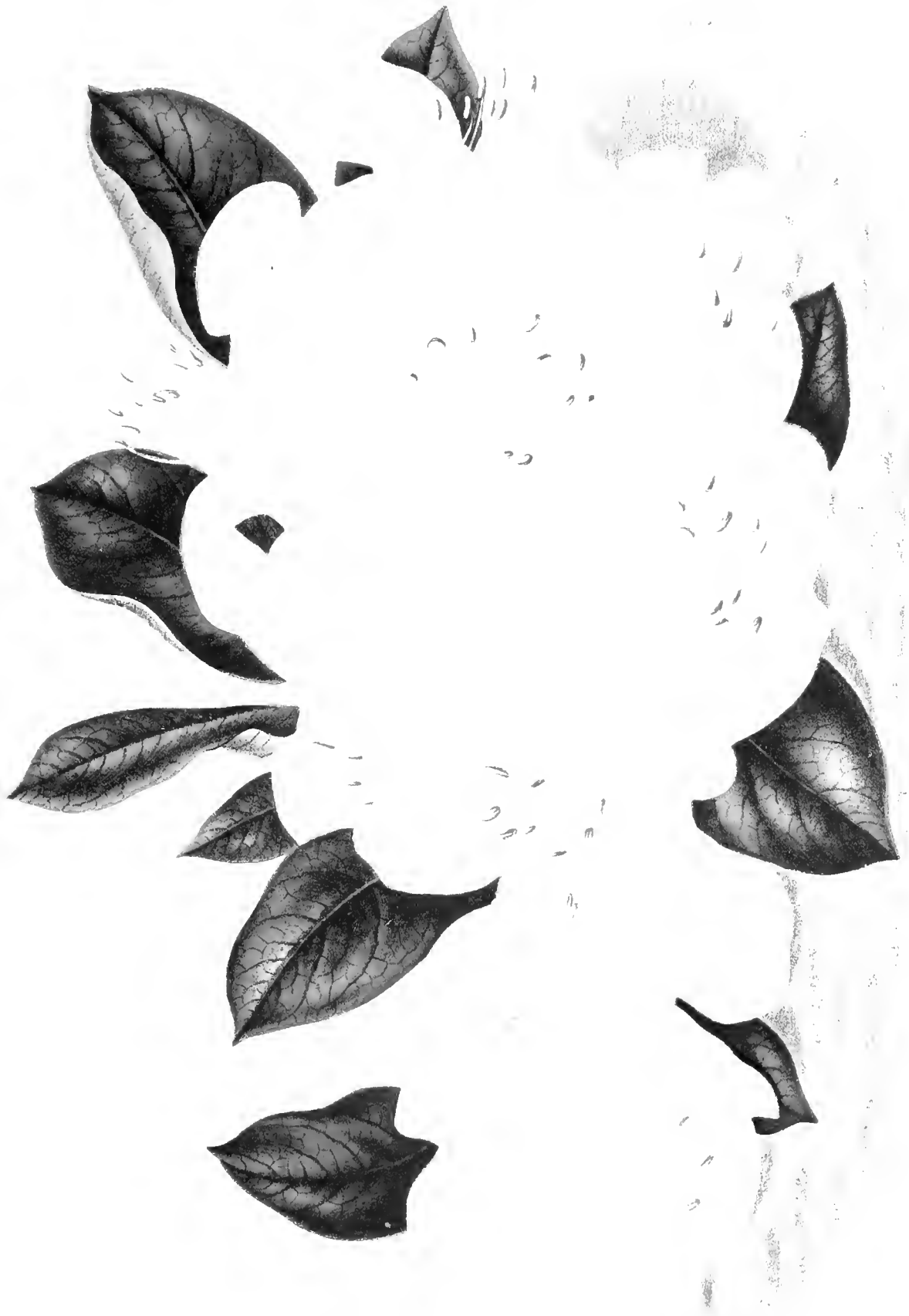
RHODODENDRON AUCKLANDI HYBRIDUM.

Drawn by MRS. DUFFIELD.

THIS beautiful hardy variety of Rhododendron is one of a batch of seedlings raised from R. Aucklandi crossed with the best hardy varieties. R. Aucklandi flowered in the Lawson Nurseries about ten years ago, when the attempt was made to raise a hardy, fragrant race with the blood of this large, fragrant Indian species. The variety we figure partakes of the size and the delicate perfume of the parent, with the hardiness and the bright colouring of the better-known hardy kinds. Seven years ago the batch of seedlings referred to were planted out in an exposed situation to test their hardiness. The majority proved to be insufficiently hardy for open-air culture, but the particular variety now figured and a few others have withstood all the severe winters since without ever showing an injured leaf. It flowered in the spring of 1876 for the first time, a bush about 2 ft. through being covered with bloom. The beauty of the flower is of that delicately toned kind of which colour printing can but give an imperfect idea. We may, however, say from having seen the plant, that its beauty is of a very unusual character, and unique among Rhododendrons. It will form a valuable addition to hardy varieties, and also prove welcome as a conservatory plant. The plant is now being propagated in the Lawson Nurseries, but will not be obtainable in commerce until sufficient stock is ready.

INDIAN FORESTS.

At the last meeting of the Indian section held in the lecture hall of the Society of Arts, an interesting lecture was delivered by Mr. W. Taylor (late Commissioner of Patna) on the Primeval Forests of India. He said that although there were many tracts of country—as, for example, Scinde, part of the Punjab, and elsewhere in Central India—which were almost rainless, and with very little vegetation, yet on the slopes of the Himalyas and other mountain ranges, on the detached ridges in Central India, in the Deccan, and along the Eastern and Western Ghats, there were grand primeval forests, many parts of which probably no human foot had trod—great sources of wealth lying as yet undeveloped. Still, part of them had within the last 20 or 30 years come under the consideration of the Government, which had at last recognized their value, not only for timber for house and ship building, for railway sleepers, and for many other purposes, but also for their general and essential importance to mankind. The benefits of forests were great, and of more than one character. First might be mentioned their direct value as timber for fuel, for their fruits and products, such as india-rubber, dyes, and other productions. They also provided grateful shade to the people. The forests naturally were principally near the mountain slopes down which rapid torrents flowed, irrigating the plains and swelling the great rivers which rolled from north to south; and if it were not for the trees clothing the sides of the hills those waters would rush down in devastating torrents, tearing down bridges, overthrowing buildings, and carrying everything before them. The presence, then, of trees and vegetation on the hill-sides had the beneficial effect of impeding the downward rush of the streams, as well as of moderating and regulating the supply of water to the plains. He could give no better illustration of the relative influence of moisture upon vegetation than the district of the Terai—a tract of land from 15 miles to 30 miles in breadth, lying along the lower ranges of the Himalayan chain of mountains. Beyond that lay another district of about the same breadth, called in the native dialect the Bahadar. That, in fact, was one great filter-bed of sand and vegetation, through which the descending water slowly permeated. The water passed down through the earth until intercepted by a bed of clay and then re-appeared on the surface in the form of springs and wells—a general diffusion of the subsoil moisture. That belt of land, the Terai, was covered with magnificent forests, and it would at once be seen how much they must influence the surrounding country by their effect upon the supply of water to the streams and to the country generally. It was a great pity that Bengal had not been planted with trees, as had been successfully done in the Neilgherries, as well as towards Darjeeling and in many other places. The vast forests of India, great sources of national wealth, were all but unknown as regarded their value, and until recently were uncared for. In the year 1846 the Government of Bombay first deputed Dr. Gibson to assume some sort of supervision and care over these forests, with the view of providing wood for the



dockyards. The supervision then extended to Madras, and from Dr. Gibson passes on to General Cotton and Colonel Michael. With them was afterwards associated Dr. Klegboru, and now, happily, the whole forest system of India was more or less under supervision. A large tract of forest country had been demarked and laid out, and some 6,000,000 or 7,000,000 acres of forest had been brought under the supervision and care of the forest department. But there were still endless tracts of forest which were untouched and lay beyond the supervision which the civil engineers could give to them. The Onde forests were no longer to be left undeveloped, and in time the whole country would be, he hoped, so thoroughly explored that an immense increase would result to the commerce of Great Britain. A vote of thanks to the lecturer closed the proceedings.

The Fuchsia as a Climber.—Though formerly much employed as a conservatory climber, the Fuchsia is now seldom seen grown in that way. Few plants, however, are better suited for the

THE KITCHEN GARDEN.

ASPARAGUS CULTURE.

Of all vegetables none are held in more universal esteem than Asparagus, and yet its cultivation is but little understood, or it would not be the scarce commodity it is in our markets, where its price is so great as to preclude its use except by those in the most affluent circumstances. Considering its hardy nature, the great ease with which it may be grown, and the permanent character of the beds when properly made and cared for, this certainly ought not to be the case, nor is it so elsewhere, as in France and other countries, when in season, a good dish of fine large heads is generally placed upon the dinner-table.



Panax laciniatus.

purpose, inasmuch as they may be had in bloom under good management all the year round. In a small lean-to house at Cliveden, there is a very large Fuchsia which is attractive at all seasons of the year; it is planted at the back of the house, and trained down close under the roof. On the same stock have been grafted from time to time many different varieties, some of which are nearly always in flower, and the blossoms being of different colours, the effect produced is most interesting.—S.

Panax laciniatus.—This graceful fine-foliaged Araliad will form a valuable addition to plants suitable for table decoration; it is of medium growth, and when about 12 in. or 18 in. in height its appearance is strikingly beautiful. The stem is smooth and slender, slightly mottled with brown, the leaves are alternate, and the leaflets deeply cut or lacinated, and of a light and pleasing shade of green. It is a native of the South Sea Islands, and when shown by Mr. B. S. Williams, Holloway, at one of the meetings of the Royal Horticultural Society, it was awarded a first-class certificate.

Preparation and Treatment of the Beds.

The time of year having now arrived for renovating old beds and reforming new ones, many readers of THE GARDEN may be glad to know how they can best improve the growth of what they have or make such plantations as will afford them an abundant supply for the future. As regards old beds little can be done to add either to the quantity or quality of the produce for this season, as the crowns that are now producing heads for cutting were formed during last summer and autumn; and if these be small and weak, the whole should be left to grow instead of cutting them for use. This will so add to the strength of the plants by stimulating root-action as to recruit their exhausted energies; and to aid them in this a good dressing of thoroughly decomposed manure should be scattered over the beds and alleys as a mulching. Besides enriching the soil by the constant washing it must necessarily undergo during rainfall, it

will act as a conservator of moisture by intercepting evaporation, which has a very important bearing on the successful cultivation of Asparagus, for, being a native of our sea-shores, it cannot bear its roots in dry, sun-parched ground while making its growth. This being the case beds should not be without a top-dressing of some kind during the summer, and if in addition a soaking of liquid manure can be given once or twice during July and August, the plants will be greatly benefited. Salt applied now forms an excellent fertilizer and is highly beneficial in a variety of ways, as it keeps down weeds, destroys slugs, and helps to keep the soil in a uniform state as to moisture, in addition to which it imparts an improved flavour to the heads when cooked if applied just before cutting. My favourite mixture at this season for surfacing the soil in which Asparagus is grown, is about equal quantities of soot and salt, to which a little guano or superphosphate has been added, but the two latter must be used with a sparing hand, as 4 lb. or 5 lb. is sufficient for a good-sized bed. By annually using the above at this season, in addition to the autumn-dressing of manure, and not continuing the cutting after the first week in June, all exhausted beds may be rejuvenated, as there is scarcely any limit to the age of Asparagus plants. The practice of digging out the alleys is most barbarous, and cannot be too strongly condemned, as it severs many of the most active and important roots, and forms ditch-like channels for the retention of water during the winter, and serves no useful purpose whatever. Why such a practice ever came into vogue is a mystery, and why it should still be continued is still more inexplicable, but when once a particular custom is adopted it is a difficult matter to persuade people of its inutility, so tenaciously do many cling to old usages. The idea appears to have been that it was necessary to protect it from frost, but that is a most fallacious notion, for the Asparagus plant in its dormant state is as hardy as a Dock, and, if it were not, it could not endure the treatment to which it is annually subjected. I question if there be any other plant that would undergo the process of burial 12 in. or 18 in. deep during six of the wettest and dullest months of the year without showing unmistakable signs of suffering; and that Asparagus does manage to survive and struggle on, only shows how tenaciously it clings to life, and what a long-suffering subject it is. If, instead of digging out the alleys between the beds, and packing the soil so removed on the top of them, a good heavy dressing of pig or cow manure were scattered over the whole surface, and allowed to remain during the winter, the rich juices would be carried down, and the manure would become so sweetened and pulverized as to moulder away by the time the rich succulent heads of Asparagus make their appearance in the spring. It should be remarked that so long as Asparagus is in use, the whole of the heads, both small and great, should be cut, and not the strong only as is often the case, as then only the weak shoots left continue to grow, while many buds remain dormant for a time, and eventually die away altogether. As before observed, the cutting should not be too prolonged, as that weakens the plants; and when once it ceases, every encouragement should be given by keeping the beds perfectly free from weeds to get the stems as stout and robust as possible. In exposed situations these are apt to get blown about, and to prevent this it is a good plan to stick a few brushy Pea-sticks in the beds for their support, for should they get broken or damaged, the plants will be considerably weakened. The French, who are by far the best growers of Asparagus, pay as much regard to preserve the tops from injury as florists to their Dahlias or Hollyhocks, and the result of their careful attention may be seen in the enormous size of the heads.

Choice of Soil for New Beds.

As regards the formation of new beds, the principal thing is to make choice of a good piece of ground of great depth with, if possible, a naturally dry bottom, such as a subsoil of sandy gravel will afford, and this secured, the next step is to trench and prepare it for the reception of the plants. As the beds should last a lifetime, no pains should be spared in their construction, especially as success depends more on the way in which they are prepared than on any subsequent atten-

tion. Manure must be applied with a liberal hand; indeed, it is almost impossible to use too much of it for Asparagus growing, but although this is the case, it should not be in that crude, rank state that it is when fresh from the farmyard, for if buried in such an undecomposed condition, it lies inert in the soil, and is a long time before it is at all suitable as nutriment for the roots. In trenching the ground, a good wide opening should be made, not less than 3 ft. across, and, if the land will bear it, nearly or quite the same depth, so as to leave plenty of room to work in the manure, and to break up the soil in such a manner that the roots can ramify freely in search of moisture and food. In strong, heavy land Asparagus is apt to go off in the winter from excess of moisture, and, therefore, where such is the character of the soil, rotten leaf-mould, sharp river-sand, or road-scrapings should be added to the manure and worked in with it during the operation of trenching, so as to incorporate the mass well together.

Marking out and Planting.

The next process is to mark out the beds, the usual and most convenient width of which is 5 ft., with 2-ft. alleys between, a distance that allows ample space for all purposes. In planting the proper way is to strain a line down the centre of the bed, and with a sharp spade to cut a trench 9 in. or 12 in. deep in which to place the roots. Plants of a year old are the most preferable, and may be put in any time from now to the middle of June or even later with the greatest success, provided a dull, showery time is chosen for the work, and the soil is well washed in amongst their fibres before finally covering them up. The two outer rows should be 15 in. from the centre, and the plants about 12 in. apart in each. This allows more room than is generally given, but if fine heads be desired they cannot be had by overcrowding. Formerly Asparagus used to be planted just as it was beginning to move, but I have always seen it thrive better when it had made some top growth, as then the roots are actively at work and quickly recover from any injury they may have received; whereas earlier in the season the injured parts rot, either from the excessive quantity of moisture they contain in themselves or what they take up from the soil. One disadvantage in late planting is that the plants must be grown on the spot, as they do not travel well from a distance when in the forward state they now are unless their transit is unusually quick.

Sowing the Seed.

Some of the best beds I have were obtained from sowing the seed instead of planting, and I can strongly recommend the adoption of the plan by others as a safe and certain way of getting Asparagus established with very little trouble. The ground should be prepared precisely the same as if it were to be planted, and two or three seeds inserted in rows at 12 in. or 15 in. apart, and when up thinned out and left singly, after which the growth will be most rapid, and, at the end of the second or third year, little if at all inferior to any that may have been transplanted. As neither these nor one-year old plants will occupy all the ground the first season, the vacant spaces between may be made use of to grow some light summer crop, such as Lettuces, Radishes, or even Cauliflower if planted in the alleys between; but whatever is grown must not in any way be allowed to interfere or encroach on the Asparagus to rob it of its nourishment or draw it up weakly. The subsequent treatment of these young plantations should be in all respects the same as for the old established beds. Those who have not the time or the spare ground to start with fresh beds at once may still sow a row of seed in some rich, open part of the garden, so as to be prepared with fine strong plants for next season. The best and largest kind to grow is Conover's Colossal, an American variety introduced some years since, and although with me it does not attain the gigantic proportions it is said to do in that country, it is superior to ours.

S. J.

Late-planted Potatoes.—Mr. Gilbert's system and time of planting are in accordance with the practice of a large number of growers who make the cultivation of Potatoes a speciality. I have always observed that Potatoes planted in April grew more freely, were ready for use as early, and were in every other respect equal to

those planted in March; they generally escaped many of the calamities caused by early planting. These remarks do not of course apply to warm, well-prepared borders, on which protection is used. Last season most of our Potatoes were planted in the third week of May, and so far as the early kinds were concerned (Kidneys especially) we never had a finer crop, both as regards quantity and quality. Late kinds, however, planted at that time seemed to suffer worse than usual from disease, and their quality was, on the whole, inferior to that of the early varieties; planting thus late was not from choice but necessity. The ground being new was hard and dry through drought, and could not be got ready earlier. This season, too, we are placed somewhat similarly, for we have still (May 21) a quantity of Potatoes to plant; they are at present in a cool shed, spread out thinly, and have only sprouted about $\frac{1}{2}$ in. One of the evils from which Potatoes suffer severely is their being kept in a close structure with a temperature high enough to cause early sprouting. Thus treated, when placed in the cold ground, their vigour is either destroyed or impaired. When Potatoes are forced very gently with plenty of air they do much better in every respect than when grown in a temperature above 45° or 50°. Our pot Potatoes, which were ready in March, were grown in a cool Peach-house, with air on almost every day and night throughout the winter, and they were about the best we ever had so early in the season; they were sprouted in the first place in warmth, then well hardened off before being potted.—M. T.

GARDEN MANURES.

EVERY intelligent farmer is fully alive to the importance of keeping up the fertility of his land by frequent and liberal supplies of manure, and gardeners are certainly not behind in this all-important matter. It very often happens, however, that the gardener is placed at a disadvantage as regards obtaining an adequate quantity. As a rule, the garden is a secondary consideration compared with the farm as respects the raising of crops requiring manure. This is not as it should be, for gardens are generally so heavily and constantly cropped that it is impossible to keep up their fertility without heavy supplies of nutriment for the soil. Where vegetables are required in quantity the ground is usually cropped twice, and part of it three times during the year, and garden produce of every kind is very exhaustive to the soil. Even flower-beds, especially those that are required to yield two crops of flowers in the year, require plenty of decomposed manure or its equivalent. There are three things necessary for the proper cultivation of a garden, viz., trenching, manuring, and the rotation of crops. I have just stated that garden crops are very exhausting to the soil; to counteract this a clear perception of all the requisite conditions for continued fertility is necessary on the part of the cultivator. Science has come to the aid of experience to prove the importance of the three conditions here named. It is quite possible that a garden might be regularly manured and a proper rotation of crops observed, and yet the garden lose its fertility. All plants are composed of organic and inorganic constituents; these are derived chiefly, if not exclusively, from the soil through the medium of the roots. At present it is not my object to inquire what share the leaf has in feeding the plant; for, whether a plant derives any of its sustenance from the air through the medium of the leaf or not, it is agreed on all hands that it is nourished chiefly through its roots. A plant, in short, absorbs the nutritive qualities of the material in which it is planted; it carries away organic and inorganic material from both soil and manure. This being so, these materials must be restored to the land. Johnson tells us that 1000 lb. of the ash of Potatoes consist of the following ingredients:—Potash, 557; soda, 19; lime, 20; magnesia, 53; oxide of iron, 5; phosphoric acid, 126; sulphuric acid, 136; silica, 42; and chlorine, 42. This is the proportion in which a crop of Potatoes takes these inorganic constituents from the soil. But the same authority tells us that the same weight of Turnip ash is in very different proportions, viz.:—Potash, 419; soda, 51; lime, 136; magnesia, 53; oxide of iron, 13; phosphoric acid, 76; sulphuric acid, 76; silica, 79; chlorine, 36. The necessity will thus be seen at a glance from the analysis of these two ordinary garden vegetables, of restoring to the soil what has been abstracted from it, and also of a change of crops. The ashes of the Potatoes contain only 20 lb. of lime, while the same quantity of the Turnip ashes contain 136 lb., or nearly seven times as much. If a crop of Turnips were grown continuously on the same plot of ground, they would certainly degenerate, simply from want of a sufficiency of lime, as well as other materials requisite for its full development. Hence the importance of manure and a proper rotation of crops; but experience has proved that old gardens, the crops of which have been regularly changed and manured from time to time, fail to produce Turnips as well as other crops. What is the reason of this? A

change of crop does not restore fertility to the soil; nor does manure of whatever kind, or in whatever quantity applied, restore all the constituents that have been absorbed by successive crops. Trenching or subsoiling must be resorted to, in order to supply the mineral matters abstracted from the surface-soil by years of hard cropping. A rotation of crops simply means that a Turnip or a Cabbage will carry away what a Potato has left; but such rotation will go on exhausting the soil more and more; nor is manure alone able, as I have already said, to prevent this exhaustion, for the simple reason that the component parts of manure do not contain all the required nutriment for the soil that plants carry away. I would therefore impress on those who have the care of old gardens that they must trench, manure, and adopt a proper rotation of crops. Many of our ancestors were most excellent and successful cultivators; they could grow fruit and vegetables to perfection; they knew little, perhaps nothing, about chemistry; but modern chemistry has only confirmed the practice of the leading cultivators of previous generations, whose motto was—deep cultivation, thorough manuring, rotation of crops, and clean tillage. E. R. Q. P.

VEGETABLE MARROWS.

THE general use of these as a choice vegetable for all classes within the last few years marks one of those changes of public taste which are slow in their growth and exceedingly rare. Man is emphatically conservative in the matter of his food. Hence every new vegetable has to wait long and patiently before being accepted and used in a general way as an article of diet. Vegetable Marrows should be eaten young—say when about one-fourth or one-sixth their natural size. Cut in this state, and boiled quickly until quite tender in plenty of water, carefully strained, and served with melted butter, they are second to no vegetable that comes to table, not even excepting green Peas or Asparagus. Early cutting, careful cooking, and serving are the chief points to which attention should be paid; but there are others, one of the principal being rapid growth. Grow Vegetable Marrows quickly, and they are almost sure to be good; grow them slowly, and you will find them often tough and bitter. Hence the soil or place in which they are grown can hardly be too rich for them. Not but what they do fairly well in any good garden soil, but the richer it is the better. On a rubbish-heap, for instance, Vegetable Marrows grow with wonderful vigour, and fruit abundantly. It is also a capital plant for filling any space, nook, or corner, covering dead fences or walls, scrambling over outbuildings, or growing in any out-of-the-way or rubbishy place. Vegetable Marrows should be sown in April under glass. A temperature of 55° or 60° will soon cause their seeds to vegetate. As soon as the plants form a rough leaf pot them off singly in 6-in. pots, and return them to a frame until re-established. The plants may then be gradually inured to the open air, and finally planted out in their fruiting places about the end of May. It is of no use putting them out earlier, as they are tender and easily injured by frost. When they make a good start in their new quarters the shoots may be stopped to make each throw out from six to eight leading shoots or stems. These may be led off in different directions to form the plant, and it is seldom that any more stopping or attention will be necessary. After the plants reach a considerable size or age a Marrow will be produced under each leaf, and if the fruits be cut young and none be left to ripen seeds, the plants will go on bearing until arrested by frost in October. If planted on rich mounds or manure heaps the plants will need no water; but if on poor, thin, or sandy soil, they should be plentifully watered with manure or clean water, and must not on any account be allowed to flag, else mildew will follow on the heels of the check, and the plants and produce alike be destroyed. A yet simpler way for those who have no glass and are content to wait a little longer for their Marrows, is to plant the seeds in the ground at once—about the beginning of May. A hand-light, or bell-glass, or pot placed over them may bring them up all the sooner: but they will come up without any such aids to germination and make good progress, and the plants will yield a good crop throughout the late summer and autumnal months. As regards varieties, there is the New and Improved Custard, which is much liked by some; others consider it too rich and marrow-like to be pleasant eating. The flavour is distinct and peculiar, and it needs but little imagination to suggest the flavour of custards. Moore's Vegetable Cream has a rich, mild, sweet flavour, as the name suggests. But there are few or no Vegetable Marrows really superior to the old white and green striped, if these be grown rapidly and gathered young. D. T. FISH.

Tarragon.—Those who find any difficulty in growing this useful herb, should make a compost of road-scrappings, old mortar rubbish, and leaf-mould, and in this it will supply any quantity of produce.—J. GROOM.

GARDENING AND BULB GROWING IN HOLLAND.*

In Holland every man is a boatman more or less; everything begins and ends at the water-side, and where in the formation of a park or garden there does not happen to be already a perplexing superfluity of water, the Dutchman's love of the element leads him to the formation of straight canals and circular puddles. It is a most important feature of gardening and farming everywhere, for manures, soils, seeds, trees—whatever has to be carried to or from the land—is carried in boats or barges, and it is no uncommon thing for a nurseryman wanting trees for a customer, to push a boat into the quarter and draw out the trees with his hands without using pick or spade, or any other implement. A sandy soil full of water will not hold anything tight, unless it be the water, which never goes away. Nevertheless, the hollow polder with its verdant pastures and low level ditches, the great canals that rise above it and produce the curious spectacle of ships sailing in the air, the frequent changes of light and shade as the sunshine struggles through the humid atmosphere, the ever-recurring well-made road, and trees in regular rank and file, afford scenery agreeable to the eye, and immensely interesting to a connoisseur of Dutch pictures, while the cities and villages abound in features that, to English eyes, are at once distinctive, quaint, and picturesque. That the climate—more especially in the north—is characterised by greater cold in winter and greater heat in summer than we are accustomed to is well known. As a rule, glass houses of all kinds, including pits and frames, are furnished with substantial shutters, which can be quickly passed over the lights to convert the structures into dark boxes while severe frosts prevail. Reed mats are everywhere used to protect fruit trees and bulbs when making their spring growth, while the German stove in the bedroom tells the same tale of pinching weather in the dark season of the year. The want of good fuel of necessity exercises an influence on horticultural industries, and hence the amount of glass employed is quite infinitesimal as compared with its use in this country, or even in France and Belgium.

In respect of the style of Dutch gardens, generally speaking it is in every respect the same as the French. Clipped trees and geometrical complications are by no means so common as usually supposed, and it would be scarcely unjust to say that in Holland there are no gardens at all. A fair study of the domestic taste may be made in the little village of Broek, which is essentially Dutch, and in its way famous for typical representation. I noticed here a charming lot of Hollies and other handsome trees in the churchyard, the ground beneath them being golden with the little *Celandine*, and in the rear of Dame Fregere's house is a garden of clipped Hollies of the most fantastic sort, the trees being formed into a kind of round-topped hedge, from the summit of which rise a number of cocks and hens, and chimneys, and candlesticks, obtained by systematic clipping. A Dutch garden usually comprises a patch of turf of indescribable outline, enclosed and intersected by numerous walks, bounded by a series of canals which lead away to ponds and summer-houses, with a parterre of the orthodox geometric fashion, for a display of flowers. The inscriptions on houses, gate-posts, and pavilions are much more calculated to interest the stranger than the contents of the gardens; nevertheless, horticulture in Holland comprises skilful management of fruit trees and vegetables, and a moderate use of trees and ornamental flowers. That the last are not universally in favour may be judged from the fact that in the course of a fortnight's continuous and assiduous exploration I saw but one good display of bulbous flowers wholly unconnected with commercial culture, and that was in the public square in Amsterdam, where stands the statue of Rembrandt, at the foot of which were some brilliant beds of *Hyacinths* and *Tulips*. The most agreeable scenes of a strictly rural kind are at Haarlem, Alkmaar, and the Hague, where we see trees of fine growth unmitigated by saw or knife, with clean stems, containing sound timber, the product of some better soil than the loose sand or greasy peat met with generally on the surface. If you ask how these *Beeches*, *Oaks*, *Limes*, and *Elms* subsist on land that appears by its splendid covering of golden Moss too poor

to produce Grass even, you have but to remember that it is customary to build upon piles, and in driving these down a firm subsoil is met with, and beyond doubt it is the firm subsoil that makes the fine timber we see in a few specially favoured districts. Between Haarlem and the Dunes, and especially towards the ruins of Brederode, the soil is peaty, and trees of all kinds thrive upon it. Hence we see in the home gardens of the wealthy bulb-growers beautiful collections of ornamental trees and shrubs, and occasionally capital fruit gardens, the trees being for the most part trained as upright or oblique cordons. In the *Oak coppices* beyond may be heard all the song birds of Europe—the thrush, blackbird, nightingale, robin, chaffinch, and many that are scarcely known in Britain; in the open fields are seen myriads of rooks and starlings, and the storks are amusingly conspicuous.

In Holland wall trees are usually trained on lattices of wood, and wooden walls are much employed, and everywhere Reed mats are in use for protection, the spring frosts being peculiarly destructive, owing to the prevailing humidity of the climate. There is no parallel in Holland to the Kentish orchard of unpruned trees, there is no such thing known as the Apple tree that produces forty bushels of fruit; but so far as fruit growing obtains attention, it is pursued with artistic skill and patience; and the pruning and pinching are equal to the best work of the kind seen in French and Belgian gardens. In a country where peat runs into sand and sand runs into water, and the north wind is unimpeded, and rages in its own wild way over the land, fruit growing can never become an important industry; and perhaps the artificial treatment of fruit trees that prevails is amply justified by the circumstances.

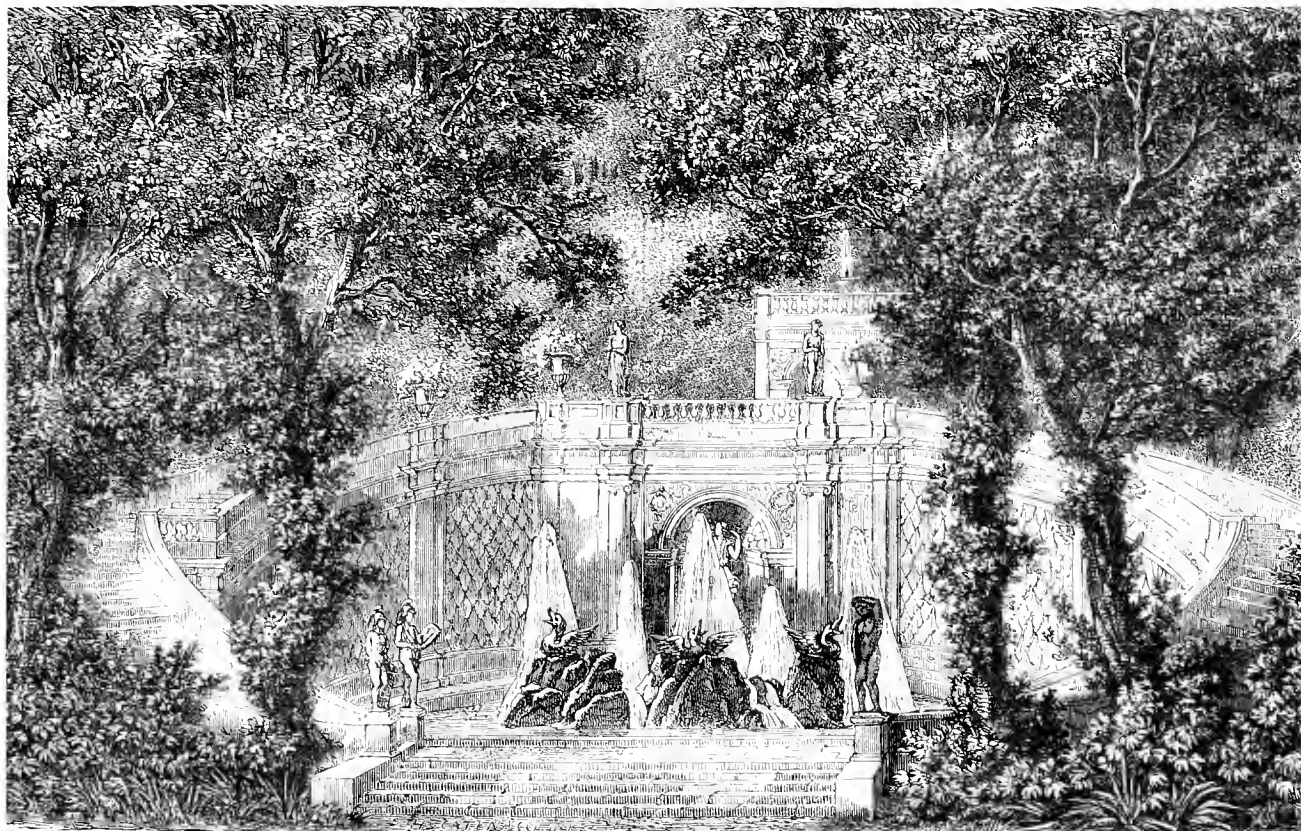
In the culture of vegetables the Dutch are adepts. Everywhere may be seen Lettuces of remarkably fine quality, also Lamb's Lettuce, Cabbages of a peculiar yellow colour, that are of excellent quality when cooked, and good Broccoli and Cauliflowers. A travelling greengrocer's shop, drawn by a great dog, managed by a buxom woman, whose head is adorned with a broad band of gold, with gold blinkers behind the eyes, and spirals of gold projecting into space, like ram's horns from fairyland, will attract attention, not only by its general equipment, but by the multitude of baskets, for the far-spreading shop or barrow will carry at least a dozen large well-made baskets, all filled with the most tempting green stuff. If the Dutch demand special praise for any special thing in the vegetable way, they shall have a heap of adulations for their culture of the Cabbage Lettuces, for they come to market the size of a cricket ball, and as round and tight, the colour a bright golden green, the texture crisp and tender, the flavour buttery and delicate. All the Salads are well done; but there is room for improvement in respect of *Seakale* and *Asparagus*, and if there be no room for improvement, there is at least excuse for remark on the subject of Potatoes. Those served on good tables are always small, the largest being just the size as may be described by bringing the tips of the thumb and forefinger together to form a circle. These are usually excellent in quality, and the variety most prized is the Dutch Silver Skin. The neat little Potatoes destined for first-class tables are grown on the sand-hills; but in the bulb grounds large Potatoes are grown, and are sent away to the starving English, or find a market amongst the poorer classes in Dutch towns. The sandy soil is prepared for bulb culture by extravagantly manuring it with cow-manure at the rate of a shilling a barrowload (a barrowful being the unit in the commercial view of the subject), and then it is planted with Potatoes. Now for this culture round Potatoes are mostly employed, and the sets consist of large Potatoes newly cut into convenient-sized pieces. Our friends are not expert in exhibiting Potatoes, if we may judge them by a collection of some forty or fifty sorts presented at the Amsterdam exhibition. A sorrier lot of samples we might travel far and wide to see, but happily not many saw them, for they were removed the day after they were staged, and their place supplied by a fine collection of models of various kinds of fruits. It is somewhat singular that in a country where water fights with the land for supremacy, the Water-Cress is a thing almost unknown. We found a few in one of the small canals, and received for explanation that an English family had resided on the spot and had introduced the Cresses.

The bulb farms in the neighbourhood of Haarlem constitute

* Read by Mr. Shirley Hibberd at the Hackney Gardeners' Improvement Society.

a very distinctive feature in the horticulture of Holland, if, indeed, we may consider the business in the category of horticultural, and not of agricultural enterprises. Its extent, the spirited manner in which it is conducted, the respectability, intelligence, and geniality of the men engaged in it, and the social comfort that prevails throughout the district tell with emphasis how a profitable industry raises the standard of a people. To convey any adequate idea of the remarkable displays of colour the country presents when the bulbs are in flower is simply impossible. The utter absence of all art in the disposal of colours, the hard square blocks and sharp oblong strips in which the colours appear, so far from lessening our interest or weakening our surprise, tend rather to augment them both, for we know they are grown for trade purposes solely, and we do not expect either geometrical patterns or studied harmonies of colour. Chance harmonies occur that are wonderful, and if there be discords sometimes apparent, the

like foliage. On taking one out of the ground it is found to contain a vast number of oval bulbs about the size of a finger nail; these by the end of the season ripen into bulbs as large as Filberts. All true bulbs may be caused to form bulbils by judicious mutilation; but corms, such as the Crocus and the Gladiolus, cannot be operated on in this way, and, indeed, they form their progeny on the crown in clusters. Many kinds of Tulips naturally multiply with such rapidity that there is no need for any special operation to expedite the business, and of Crocuses considerable numbers are raised from seed. If it be asked at what age the bulbs begin to flower, the answer must be that with all the sorts it is no uncommon thing to see flowers in beds containing bulbs of the first season; and, indeed, the beds in which hollowed Hyacinths are planted show here and there little spikes carrying three or four flowers, the produce of bulbils that have not yet attained to an independent existence. Therefore, it is a question of no



Terrace and Trees in the Villa d'Este.

general splendour and the overwhelming magnitude of the display render it impossible for the mind to dwell upon trifling details. The floral industry of Haarlem and its suburbs is directed for the most part to the production of Hyacinths, Tulips, Ranunculuses, Anemones, and Narcissus, the two first taking the lead. Crocuses, Snowdrops, and Lilies are not much grown in this district; but the keen eye will detect patches of them in the course of a railway ride. In preparing the land for bulbs immense quantities of cow manure are used, and although the country produces this article in plenty, the great demand for it renders it very expensive. In every case a crop of Potatoes is taken off the newly-prepared ground, and after the Potatoes Hyacinths are planted, and after these Tulips. The routine culture of the bulbs is very simple. The bulbs selected for increase of stock are usually mutilated by cutting incisions in the plate, or the interior is scooped out, the result being that on the edges of the scales that remain vast numbers of little bulbils are formed. The mutilated bulbs are planted without any separation of the scales, and soon throw up tufts of grass.

moment what is the age of a particular bulb; generally speaking they are saleable after the second season, and in fine condition after the third, and as a new variety of Hyacinth can be got up for the market in five years, it is evident that the first start being safely effected the multiplication thereafter is in a geometrical ratio. A variety that now engrosses attention, and is being multiplied to the utmost, is King of the Blues, the best of the blue Hyacinths, and very telling when seen *en masse*. The raising of the seedlings is carried on by the smaller growers, who sell their best novelties to the larger men, the latter rarely giving their attention to such work as the production of new varieties.—“Gardeners’ Magazine.”

Terrace and Trees in Villa d'Este.—The illustration of the above may suggest the question, what would the terrace, &c., be without the trees? about as satisfactory as any other piece of ordinary masonry. In many terraced gardens admittedly beautiful, both here and abroad, may be noticed the same relief of the stone by vegetation; for example, at Clivedon, at Haddon Hall, and Shrubland.

THE PLANT-LORE OF SHAKESPEARE.

(Continued from p. 435).

Mallows.

Antonio.
*Sebastian.*He'd sow it with Nettle seed.
Or Dockes, or Mallows.*Tempest*, act ii., sc. 1.

The Mallow is the common roadside weed (*Malva sylvestris*), which is not altogether useless in medicine, though the Marsh Mallow far surpasses it in this respect. But the common Mallow is a dear favourite with children, who have ever loved to collect, and string, and even eat its "cheeses;" and these cheeses are a delight to others besides children. Dr. Lindley, certainly one of the most scientific of botanists, can scarcely find words to express his admiration of them. "Only compare a vegetable cheese," he says, "with all that is exquisite in marking and beautiful in arrangement in the works of man, and how poor and contemptible do the latter appear. . . . Nor is it alone externally that this inimitable beauty is to be discovered; cut the cheese across, and every slice brings to view cells and partitions, and seeds and embryos, arranged with an unvarying regularity, which would be past belief if we did not know from experience, how far beyond all that the mind can conceive, is the symmetry with which the works of Nature are constructed."

As a garden plant of course the Wild Mallow has no place, though the fine-cut leaves and faint scent of the Musk Mallow (*M. moschata*) might demand a place for it in those parts where it is not wild. But our common Mallow is closely allied to some of the handsomest plants known. The Hollyhock is one very near relation, the beautiful Hibiscus is another, and the very handsome *Fremontia californica* is a third that has only been added to our gardens during the last few years. Nor is it only allied to beauty, for it also claims as a very near relation a plant which to many would be considered the most commercially useful plant in the world, the Cotton-plant.

Mandragora, or Mandrakes.

- (1)
- Cleopatra*
- . Give me to drink Mandragora.

That I may sleep out this great gap of time.
My Antony is away.*Antony and Cleopatra*, act i., sc. 5.

- (2)
- Iago*
- . Not Poppy, nor Mandragora,
-
- Nor all the drowsy syrups of the world
-
- Shall ever medicine thee to that sweet sleep
-
- Which thou own'dst yesterday.

Othello, act iii., sc. 3.

- (3)
- Falstaff*
- . Thou Mandrake.
-
- 2nd Henry IV.*
- , act i., sc. 2.

They call'd him Mandrake.—*Ibid.*, act iii., sc. 2.

- (4)
- Suffolk*
- . Would curses kill as doth the Mandrake's groan.
-
- 2nd Henry VI.*
- , act iii., sc. 2.

- (5)
- Juliet*
- . And shrieks like Mandrakes torn out of the earth
-
- That living mortals hearing them run mad.

Romeo and Juliet, act iv., sc. 3.

There is perhaps no plant on which so many books and treatises (containing for the most part much sad nonsense) have been written as the Mandrake, and there is certainly no plant round which so much superstition has gathered, all of which is more or less silly and foolish, and a great deal that is worse than silly. This no doubt arose from its first mention in connection with Leah and Rachel, and then in the Canticles, which perhaps shows that even in those days some strange qualities were attributed to the plant; but how from that beginning such, and such wide-spread, superstitions could have arisen, it is hard to say. I can scarcely tell these superstitious fables in better words than Gerarde described them. "There hath been many ridiculous tales brought up of this plant, whether of old wives or some ranaque surgeons or physicke-mongers I know not. . . . They adde that it is never or very seldome to be found growing naturally but under a gallowes, where the matter that has fallen from a dead body hath given it the shape of a man, and the matter of a woman the substance of a female plant, with many other such doltish dreams. They fable further and affirme that he who would take up a plant thereof must tie a dog thereunto to pull it up, which will give a great shrooke at the digging up, otherwise, if a

man should do it, he should surely die in a short space after." This, with the addition that the plant is decidedly narcotic, will sufficiently explain all Shakespeare's references to the plant. Gerarde, however, omits to notice one thing which, in justice to our forefathers, should not be omitted. These fables on the Mandrake are by no means English mediæval fables, but they were of foreign extraction, and of very ancient date. Josephus tells the same story as held by the Jews in his time and before his time. Columella even spoke of it as "semi-homo," and Dr. Daubeney has published in his "Roman Husbandry" a most curious drawing from the *Vienua MS.* of Dioscorides in the fifth century, "representing the Goddess of Discovery presenting to Dioscorides the root of this Mandrake (of thoroughly human shape) which she had just pulled up, while the unfortunate dog which had been employed for that purpose is depicted in the agonies of death." All these beliefs have long, I should hope, been extinct among us; yet even now artists who draw the plant are tempted to fancy a resemblance to the human figure, and in the "Flora Græca," where, for the most part, the figures of the plants are most beautifully accurate, the figure of the Mandrake is painfully human.

As a garden plant, the Mandrake is often grown, but more for its curiosity than its beauty; the leaves appear early in the spring, followed very soon by its dull and almost inconspicuous flowers, and then by its Apple-like fruit. This is the Spring Mandrake (*Mandragora vernalis*), but the Autumn Mandrake (*M. autumnalis*) may be grown as an ornamental plant. The leaves appear in the autumn, and are succeeded by a multitude of pale blue flowers about the size of, and very much resembling the *Anemone pulsatilla* (see Sweet's "Flower Garden," vol. vii., No. 325). These remain in flower a long time. In my own garden they have been in flower from the beginning of November till April. I need only add that the plant is a native of the south of Europe and other countries bordering on the Mediterranean, but it was very early introduced into England. It is named in Archbishop Ælfric's Vocabulary in the tenth century with the very expressive name of "Earth-apple;" it is again named in an Anglo-Saxon Vocabulary of the eleventh century (in the British Museum), but without any English equivalent; and Gerarde cultivated both sorts in his garden.

Marigold.

- (1) *Perdita*. The Marigold that goes to bed with the sun,
And with him rises weeping. These are flowers
Of middle summer. *Winter's Tale*, act iv., sc. 3.
- (2) *Marina*. The purple Violets and Marigolds
Shall as a chaplet, hang upon thy grave
While summer days do last. *Pericles*, act iv., sc. 1.
- (3) *Song*. And winking Mary-buds begin
To ope their golden eyes. *Cymbeline*, act ii., sc. 3.
- (4) Great princes' favourites their fair leaves spread
But as the Marigold at the sun's eye. *Sonnets* 23.
- (5) Her eyes like Marigolds had sheathed their light,
And canopied in darkness sweetly lay
Till they might open to adorn the day. *Rape of Lucrece*.

There are at least three plants which claim to be the old Marigold. 1—The Marsh Marigold (*Caltha palustris*). This is a well-known golden flower—

The wild Marsh Marigold shines like fire in swamps and hollows gray.
Tennyson.

And there is this in favour of its being the flower meant, that the name signifies the golden blossom of the marsh or marsh; but, on the other hand, the *Caltha* does not fulfil the conditions of Shakespeare's Marigold—it does not open and close its flowers with the sun. 2—The Corn Marigold (*Chrysanthemum segetum*) is a very handsome but mischievous weed in Cornfields, not very common in England and said not to be a true native, but more common in Scotland, where it is called Goulands. I do not think this is the flower, because there is no proof, as far as I know, that it was called Marigold in Shakespeare's time. 3—The Garden Marigold or Ruddes (*Calendula*

officialis. I have little doubt this is the flower meant; it was always a great favourite in our forefathers' gardens, and it is hard to give any reason why it should not be so in ours. Yet it has been almost completely banished, but may often be found in the gardens of cottages and old farmhouses, where it is still prized for its bright and almost everlasting flowers (looking very like a *Gazania*) and evergreen tuft of leaves, while the careful housewife still picks and carefully stores the petals of the flowers, and uses them in broths and soups, believing them to be of great efficacy, as Gerarde said they were "to strengthen and comfort the heart."

The two properties of the Marigold—that it was always in flower, and that it turned its flowers to the sun and followed his guidance in their opening and shutting—made it a very favourite flower with the poets and emblem writers. T. Forster, in the "Circle of the Seasons," 1828, says that "this plant received the name of *Calendula*, because it was in flower on the calends of nearly every month. It has been called Marigold for a similar reason, being more or less in blow at the times of all the festivals of the Blessed Virgin Mary, the word gold having reference to its golden rays, likened to the rays of light around the head of the Blessed Virgin." This is ingenious, and, as he adds, "thus say the old writers," it is worth quoting, though he does not say what old writer gave this derivation, which I am very sure is not the true one. The old name is simply *goldes*, and Chaucer spoke of them as the "yellow-goldes."

But it was its other quality of opening or shutting its flowers at the sun's bidding that made the Marigold such a favourite with the old writers, especially those who wrote on religious emblems. It was to them the emblem of constancy in affection, and sympathy in joy and sorrow, though it was also the emblem of the fawning courtier, who can only shine when everything is bright. As the emblem of constancy, it was to the old writers what the Sunflower was to Moore—

The Sunflower turns on her god when he sets
The same look which she did when he rose.

It was the Heliotrope or Solsequium or Turnesol of our forefathers, and is the flower often alluded to under that name. "All yellow flowers," says S. Francis de Sales, "and above all those that the Greeks call Heliotrope and we call Sunflower, not only rejoice at the sight of the sun, but follow with loving fidelity the attraction of its rays, gazing at the sun, and turning towards it from its rising to its setting" ("Divine Love"—Mullholland's Translation).

Of this higher and more religious use of the emblematic flower there are frequent examples. I will only give one from G. Withers, a cotemporary of Shakespeare's later life—

When with a serious musing I behold
The grateful and obsequious Marigold,
How duly every morning she displays
Her open breast when Phoebus spreads his rays;
How she observes him in his daily walk,
Still bending towards him her small slender stalk;
How when he down declines she droops and mourns,
Bedewed, as 'twere, with tears till he returns;
And how she veils her flowers when he is gone.
When this I meditate, methinks the flowers
Have spirits far more generous than ours,
And give us fair examples to despise
The servile fawnings and idolatries
Wherewith we court these earthly things below,
Which merit not the service we bestow.

From the time of Withers the poets treated the Marigold very much as the gardeners did—they passed it by altogether as beneath their notice.

Marjoram.

- (1) *Perdita*. Here's flowers for you,
Hot Lavender, Mints, Savory, Marjoram.
Winter's Tale, act iv., sc. 3.
- (2) *Clown*. Give the word.
Edgar. Sweet Marjoram.
Lear. Pass. *King Lear*, act iv., sc. 6.
- (3) The Lily I condemned for thy hair,
And buds of Marjoram had stolen thy hair. *Sonnet 99*.
- (4) *Clown*. Indeed, Sir, she was the Sweet Marjoram of the Salad, or rather the Herb-of-grace.
All's Well that Ends Well, act iv., sc. 5.

In Shakespeare's time several species of Marjoram were grown, especially the Common Marjoram (*Origanum vulgare*), a British plant, the Sweet Marjoram (*O. Majorana*), a plant of the South of Europe, from which the English name comes, and the Winter Marjoram (*O. Heracleoticum*). They were all favourite pot herbs, so that Lyte calls the common one "a delicate and tender herb," "a noble and odoriferous plant;" but like so many of the old herbs, they have now fallen into disrepute. The comparison of a lady's hair to the buds of Marjoram is not very intelligible.

Marybuds (see Marigold).

Medlar.

- (1) *Apemantus*. There's a Medlar for thee, eat it.
Timon. On what I hate I feel not.
Apemantus. Dost hate a Medlar?
Timon. Ay, though it looks like thee.
Timon of Athens, act iv., sc. 3.
- (2) *Lucio*. They would have married me to a rotten Medlar.
Measure for Measure, act iv., sc. 3.
- (3) *Touchstone*. Truly the tree yields bad fruit.
Rosalind. I'll graff it with you, and then I shall graff it with a Medlar; then it will be the earliest fruit in the country, for you'll be rotten ere you be half ripe, and that's the right virtue of the Medlar.
As You Like It, act iii., sc. 2.
- (4) *Mercutio*. Now will he sit under a Medlar tree,
And wish his mistress were that kind of fruit
As maids call Medlars when they laugh alone.
Romeo and Juliet, act ii., sc. 1.

The Medlar is an European tree, but not a native of England; it has, however been so long introduced as to be now completely naturalized, and is admitted into the English flora. It is mentioned in the early vocabularies, and Chaucer gives it a very prominent place in his description of a beautiful garden:—

I was aware of the fairest Medlar tree
That ever yet in alle my life I sie,
As ful of blossomes as it might be;
Therein a goldfinch leaping pretile
Fro' bough to bough, and as him list, he eet
Here and there of buddes and flowres sweet.

The Flower and the Leaf.

And certainly a fine Medlar tree "ful of blossomes" is a handsome ornament on any lawn. There are few deciduous trees that make better lawn trees. There is nothing stiff about the growth even from its early youth; it forms a low, irregular, picturesque tree, excellent for shade, with very handsome white flowers, followed by the curious fruit; it will not, however, do well in the north of England or Scotland.

Shakespeare only used the common language of his time when he described the Medlar as only fit to be eaten when rotten. Chaucer said just the same:—

That ilke fruyt is ever longer the wers
Till it be rote in mullok or in stree—
We olde men, I drede, so fare we,
Till we be roten, can we nat be rype.—*The Reeve's Tale.*

And many other writers to the same effect. But, in fact, the Medlar when fit to be eaten is no more rotten than a ripe Peach, Pear, or Strawberry, or any other fruit which we do not eat till it has reached a certain stage of softness. There is a vast difference between a ripe and a rotten Medlar, though it would puzzle many of us to say when a fruit (not a Medlar only) is ripe, that is, fit to be eaten. These things are matters of taste and fashion, and it is rather surprising to find that we are accused, and by good judges, of eating Peaches when rotten rather than ripe. "The Japanese always eat their Peaches in an unripe state. In the 'Gartenflora,' Dr. Regel says, in some remarks on Japanese fruit trees, that the Japanese regard a ripe Peach as rotten."

There are a few varieties of the Medlar, differing in the size and flavour of the fruits, which were also cultivated in Shakespeare's time.

H. N. ELLACOMBE.

(To be continued).

English Names for Orchises.—The Rev. H. N. Ellacombe in his "Plant-lore of Shakespeare" says:—"The Orchis, though so common, is without an English name, for though I have asked country people for its name I have never obtained one." Here, in Kent, Orchises are called by country folks "Keatlegs" and "Neatlegs," in allusion, I suppose, to the shape of the tubers resembling a calf's foot; this relates to the early purple Orchis, *O. mascula*. —JOHN MARTEN, *Chilham, Canterbury.*

THE COLORADO BEETLE.

THE ninth annual report, recently arrived, on the noxious, beneficial and other insects of the State of Missouri, by the State entomologist, Mr. C. V. Riley, contains a section of the Colorado beetle which, being official information, is of interest to Europeans. During the past year the insect has swarmed in most of the New England States, and especially on the seashore. At many places in Connecticut the beetles were washed ashore in such numbers in September as to poison the air, and the captain of a New London vessel found that they boarded him in such numbers while at sea that the hatches had to be closed. A map is given showing its eastern progress, the line of most rapid spread from Colorado being along the line of greatest human travel and traffic. When the beetle was first studied, it was calculated it would not reach the Atlantic till 1881; but it has undoubtedly availed itself to no inconsiderable extent of every means of transportation afforded to other travellers, and often got a lift on eastern-bound trains, and most probably crossed the more barren plains bordering its native confines through man's direct agency—*ie.* by being carried. It has travelled in a direct eastern line 1500 miles since 1859. There are reasons why it has not spread so rapidly along the southern as along its northern line of march. The first is, the Potato is not in such general cultivation along the southern line; the second is, that the insect is northern rather than southern in its native habitat. The next reason stated is of greater interest to Europeans—*viz.*, that, while it cannot thrive where the thermometer ranges near 100° Fahr, the intensity or length of winter will hardly affect it, except in reducing the number of annual broods, and, consequently, its power of multiplication. The state of dormancy once entered into, it may continue a month or two without harm. Mr. Riley has noticed that as the insect has spread over the country, it has become modified in habit and has increased the number of its food plants. It has also undergone considerable modification, so that old descriptions of the species no longer hold good in all cases. This is very important where, in the accident of its travelling on ships, it is necessary to decide whether a specimen is *Doryphora decem-lineata* or not. Mr. Riley says that he has seen hosts in their north-easterly spread through Iowa and Wisconsin, in which the ground colour is white rather than yellow, and the size not more than a half that of typical specimens. The ornamentation of the elytra and legs has also varied, and the black line along the elytral suture is as obsolete

as in *Doryphora juncta*. In discussing the probability of its introduction into Europe, Mr. Riley replies to the paper by Mr. Bates published in the "Journal of the Royal Agricultural Society of England," in which he argues that because no American beetles have been acclimatized in Europe, it is not likely the *Doryphora* will be. Mr. Riley mentions that *Bruchus pisi* and *Tenebrio obscurus* have been acclimatized, and further points out the especial powers of adaptation to new conditions the Potato beetle has shown. There are hundreds of North American insects—and some of the most injurious, too—which no one fears will ever establish themselves in Europe, because they are restricted, and have for years been

restricted, to certain geographical areas. But the Potato beetle has already shown that it is a remarkable exception to this restriction. Should it ever reach England and establish itself, it would enjoy the temperate climate of that country and thrive. —"Times."

BOMBYX PITYOCAMPA.

THE account so interestingly given by "A. M.," in THE GARDEN (see p. 412) of the Processionary Bombyx, that devours the Oaks in the Bois de Boulogne, reminds me of a still more destructive Bombyx that devastates the young Pines of the Riviera and some of the Mediterranean islands; it is the Bombyx Pityocampa of Boisduval. Whole tracts are not infrequently decimated by the ravenous caterpillars of this moth. Its depredations are mostly visible on *Pinus maritima* and *P. halepensis*, but it will attack occasionally the beautiful Stone Pine (*Pinus Pinea*) the classical Pine of Italy. Its habits of life bear a close resemblance to those of the Oak Processionary caterpillar, though the nests constructed are smaller and consist of more chambers, but like



The Colorado Potato Beetle. A.—The Beetle. B.—Larvæ at different ages. C.—Eggs. D.—Pupa. E.—Caterpillar. F.—Wing case, showing the stripes.

those of their congeners, they, too, have one main exit and ingress for their foraging parties. Again, there is a difference in their manner of transformation. As your correspondent justly remarks, the Processionary caterpillar of the Oak makes up within the web and so assumes the pupa state; whereas the Pine Processionary, when full fed, passes into the ground, therein to await its transformation. The larvæ are both furnished with urticating hairs, which irritate and inflame the skin by contact. As in the case of our Gold-tail, the abdomen of the moth is provided with a tuft of wool for the purpose of covering her eggs with the down. A variety of the Pine Processionary, which is much smaller, is reported to occur in Northern Germany; I have not seen it.—PETER INCHBALD, *Hovingham Lodge, York.*

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Camellias that flowered early during the winter, and were immediately afterwards put in a little warmth to make growth, will have set, and the buds developed to a considerable size; they must not be kept in heat too long, or they will open their flowers before the time required. If the earliest plants be urged on too forward at this time, it is impossible to retard them afterwards; through inattention in this matter I have frequently seen *Camellia* flowers opening by the end of August and through September that were not wanted before Christmas. Plants that are sufficiently forward should be at once moved into a cool house, where they will receive plenty of air and be shaded from the sun; see that they do not want for water, as if ever the soil gets quite dry after the buds attain a good size, they will most likely drop, although this may not occur till a long time afterwards, and may not be attributed to the real cause by those not intimately acquainted with the habit of the plants. Any plants that have been hitherto later in blooming than desired should be kept longer in warmth, for it is in the earlier stages of bud-development that the time of their flowering can be regulated, any attempt at forcing them into bloom by the application of heat through the autumn and winter generally resulting in the loss of the buds. Those that did not flower till late in the spring will now be making active growth; they will be benefited by the application to the roots once a week of a mild infusion of soot-water, say as much soot as can be held in the hand to two gallons of water; this will assist the plants in making growth, will give the foliage a healthy, dark, glossy green colour, and will also help to banish any worms that may have got into the pots. Those plants that make their growth late require more shading than the earlier ones.

Azaleas.—Of these the latest flowered should now be encouraged to make growth by keeping the house or pit moist with less air than the generality of greenhouse plants require. All except the small-leaved varieties need little or no shade, save in the very hottest weather, and that for a few hours in the middle of the day. Where *Azaleas* are much shaded whilst making their growth, the leaves always become weak and so far devoid of substance that they fall off in large quantities in the autumn, which has a correspondingly weakening effect upon the roots. Where a house or pit can at this time of the year be devoted to them and such plants as *Camellias* that are making their growth, there is little difficulty in giving them the treatment they require; but where they have to be grown in a mixed greenhouse with the usual occupants, there is no alternative but to make a compromise betwixt the several requirements of the various plants; in this case they should be placed at one end of the house where the shading can be regulated as necessary, and the syringe freely used without wetting those subjects that do not need it, admitting the air that is wanted at the opposite end to where they are ranged.

Pelargoniums and Fuchsias.—Those large-flowered *Pelargoniums*, that were some time ago recommended to have the points of their shoots pinched out so as to induce their flowering after the earlier bloomers were over, should now have weak manure-water given them twice a week; if neglected in this respect the lower leaves will assume a sickly yellow condition, and the flowering be proportionately deficient. *Fuchsias* struck from cuttings in the spring and required to bloom late in the summer should again have the points of their shoots pinched out, and any flower-buds they may have formed picked off; neither must they have their roots confined in too small pots, as this, more than any other cause, will stop their growth and induce them to form flowers sooner than they are required. The earlier plants that are now blooming should have all seed-pods picked off as soon as the flowers have dropped, as the production of seeds is more exhausting to *Fuchsias* than flower-bearing. Given them liquid manure every other time they are watered, but it must be in a highly-diluted state, as if given them so strong as many plants will bear it causes the flower-buds to drop off. A free use of the syringe two or three times a week will keep red spider in check.

Dahlias should be planted now. To grow these well they should occupy a position away from trees, the shade of which, when even ten or a dozen yards distant, draws them up weakly, the roots also being equally injurious in impoverishing the soil; high walls have a similar influence, but to a less extent, in causing weak growth, nevertheless the position they occupy should not be exposed to strong winds, otherwise, even with the most careful staking and tying, they get broken. *Dahlias* are quick growers and gross feeders, and can scarcely have the soil made too rich for them; plant 6 ft. apart, with a stout stick

to each, to which tie them at once. It is a good plan to cover the soil for 1 ft. round them with half an inch of sand, over which slugs do not like to travel; where these are numerous means must be taken for their destruction or prevention, by dusting the surface near the plants with a little soot and lime, renewed as often as it is washed down by rain until they get sufficiently strong; the slugs should also be sought for morning and evening. In addition to the ordinary varieties there is now a section of small kinds, known as bouquet *Dahlias*, the flowers of which are not much larger than those of a *Ranunculus*; they are profuse bloomers, and, when used for cutting to fill vases or baskets, are much superior to the large kinds; their general treatment is similar to that required by the large-flowered section, with the exception that there is no necessity for thinning out the shoots to the same extent.

Apricots and Peaches.—This year *Apricots* are in most places a failure through the sharp frosts that we have lately had, which killed the fruit when as large as marbles; yet it is necessary to treat the trees, so far as their general management is concerned, so as to prepare them for another year. Mistakes in this matter are frequently made by those who have not had much experience in fruit culture by leaving the trees uncared for during those seasons that they have failed to fruit. They should be examined now, and all superabundant growth removed, retaining those shoots that are in the best position for laying in. Continue to destroy the grubs rolled up in the leaves so long as there is any appearance of their being present. Keep a good look-out for mildew on *Peaches*; it will be found to attack first the young leaves on a few of the branches, for if allowed to remain unmolested, in a very short time it will affect the whole tree. A thorough syringing with Gishurst, in the proportion of 2 oz. or 3 oz. to the gallon of water, will destroy it, but to be effectual the liquid must reach every affected part; dusting with flowers of sulphur, using one of the old-fashioned sulphur puffs, is equally destructive to the parasite. The advantage in the use of the puff over the more common expedient of dredging it on from a small bag made of gauze or fine net, is that the under surface of the leaves can be reached as well as the upper; the sulphur may be allowed to remain on for a week, and be then washed off with the syringe. In too many places *Peaches* on open walls will require little thinning, the sharp nights having already effected too much in that respect; but where they happen to be too thick this necessary operation should be at once carried out.

Gooseberries.—Keep a good look-out on these for caterpillars, which in some places are now making their appearance. If the grubs be detected whilst in a small state and confined to a few leaves on probably a single branch, they can be summarily dealt with by crushing betwixt the thumb and fingers, whereas if allowed to spread they quickly run over the whole tree, in which case it becomes necessary to use the Hellebore mixture; powdered lime or even dry road dust is distasteful to them, and causes them to fall off, but unless destroyed then they will soon recommence their attacks on the trees.

Raspberries.—There is often a great waste of strength in the canes by allowing them to produce a greater number than can be retained for bearing the ensuing year, and which necessarily have to be cut away; to avoid this, and concentrate the energies of the plants in the production of the present season's fruit and the growth of next year's bearing wood, the young shoots that spring up from the bottom should now be thinned to within something near the required quantity. In the case of young plantations that have not yet attained their strength, two or three bearing shoots will be enough—those that are stronger may have half-a-dozen. In thinning the young shoots it is not sufficient to cut or break them off level with the ground, for if so treated they will quickly spring again. I have found an ordinary planting trowel the best implement to use for the purpose, removing 1 in. or 2 in. of the soil, whereby the shoots can be taken off directly from where they spring, in all cases retaining the strongest. The ground amongst these, as well as *Gooseberries* and *Currants*, should be again hoed over; if this be attended to sufficiently often the weeds can be effectually kept down with comparatively little labour; delay in this work often causes the part of the garden devoted to these fruits to have an untidy appearance, and be a source from which the seeds of weeds of a light character are carried by the wind to the surrounding portions of ground.

Tomatoes should now be planted; they may with advantage be grown wherever there is a small portion of wall at liberty, as is often the case between fruit trees; a south wall is the best, but they will frequently succeed on a western or eastern aspect; on the two latter I should recommend the greater part of the shoots being continually pinched in close—so as to bring them into bearing early; in all cases it is better to confine *Tomatoes* to a much less number of shoots than is

often done, thereby enabling more plants to be grown on a given space. The thinner the shoots are kept, the earlier they produce fruit. In warm districts Tomatoes will frequently succeed on a sheltered border fully exposed to the sun; plant them out singly, using two or three sticks to each plant for support, to which they must be kept regularly tied as the growth advances, otherwise, from their fragile nature, they get broken by the wind. Where they are so grown, the ground is better for being poor, as their natural habit of making too much growth is still further increased where the soil is rich. The plants should stand 3 ft. apart each way, so as to avoid their shading each other.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

June 4.—Sowing Snowball and American Red-top Turnips among Currant bushes. Planting White Cape, Walcheren, Hammond's White, and Grange's Cauliflower; also Backhouse's White, Dilcock's Bride, Knight's Protecting, Reliance, and Cornish Broccoli. Plunging pot Roses in the sun, in order to get their wood well ripened. Mulching Strawberries and Raspberries. Earthing-up Potatoes, Peas, and Cauliflowers. Syringing Azaleas infested with thrips with Gishurst Compound. Manuring and digging land for Winter Greens. Tying Bath Cos Lettuce, thinning Leeks, watering main crops of Strawberries, and afterwards netting them; also thinning second-sown Beetroot, and hoeing among Globe Artichokes.

June 5.—Potting newly imported Masdevallias. Shifting seedling Petunias into 5-in. pots, and established plants into their flowering pots. Planting Scotch Kale, Cottager's Kale, Brussels Sprouts, Savoys, and Autumn Cabbages; also May-sown Lettuce. Putting in cuttings of Anne Boleyn Pinks under hand-lights. Re-arranging Dendrobe-house, and putting cinders on the stages on which to place the plants. Watering Calceolarias, Perillas, Centaureas, and Dahlias. Top-dressing pot Roses with horse manure and loam, mixed together in equal quantities. Cutting Laurels, and edging and raking flower beds and borders. Sticking Scarlet Runners and Peas, and hoeing between rows of Parsley.

June 6.—Potting Caladiums, Panicums, and Alternantheras for dinner-table decoration; also potting Ten-week Stocks and Asters, and shifting standard Heliotropes into 12-in. pots for conservatory decoration during the autumn. Sowing Broad Beans amongst Currant bushes. Planting Black Hamburg and Muscat of Alexandria Vines. Pricking out Wallflowers. Turning and watering manure for Melon and Cucumber beds. Staking Carnations, Pinks, Dahlias, and annals. Watering early Peach-house and exposing the fruits which are ripening to the full influence of the sun, leaving more air on the house night and day. Plunging Tuberoses that are coming into flower in pits. Raking round Rose trees and preparing more land for late Peas.

June 7.—Shifting large Cockscobs into their flowering-pots. Tubbing a large Jasmine and *Lapageria rosea*. Planting Winter Greens, Vegetable Marrows, and Tomatoes. Layering Keen's Seedling and Garibaldi Strawberries in small 4-in. pots. Putting in cuttings of Kalosanthes, double Wallflowers, and *Salvia splendens*. Staking Heliotropes, and drawing drills for planting Winter Greens, &c. Hoeing among Gooseberry and Currant trees; also between Raspberries. Sticking more Peas, Beans, and Scarlet Runners. Watering flower garden thoroughly where the soil has become dry. Pegging down all plants that require it. Thinning Plums, Peaches, and Nectarines where not already done, and nailing in the longest of the shoots.

June 8.—Shaking out plants of *Phalenopsis Scbillieriana* that appear unhealthy, and after washing the roots clean, replacing them in fresh baskets. Taking up Chrysanthemums from open ground and potting them for conservatory decoration, and shifting Globe Amaranthus into 10-in. pots. Sowing Radishes, Lettuces, and Mustard and Cress. Planting Cauliflowers in heavily-manured trenches. Putting in cuttings of Begonias and other fine-foliated plants. Thinning Onions and Turnips, earthing-up Cucumbers, and hoeing among Gooseberry trees. Cleaning out water-tanks, clipping Yew trees, and weeding and hoeing old Asparagus-beds. Washing Camellias, in order to free them from black fly.

June 9.—Potting a few Roses into 12-in. pots, and shifting latest-struck Chrysanthemums into larger pots. Sowing Neapolitan and Drumhead Cabbage Lettuces; also Paris Green and White Cos. Planting April-sown Cabbages and Cauliflowers; also Ice-plants and

Gourds. Pricking off seedling Primulas and placing them in a cool frame. Dusting soot and lime on Onion-beds, with a view to keep down the maggot and improve the health of the plants. Thinning Apricots a second time. Watering Orchard-house trees; also Strawberry-beds. Picking insects off wall fruit trees, and afterwards syringing them with soft water. Throwing out more Celery trenches, and earthing up Cauliflowers and Potatoes.

Hardy Flowers.

ANEMONES.—Some patches of these planted somewhat late in the open border are now blooming freely. The roots had been kept for something like three years in a dry state, and yet there are but few failures. The flowers are rather small because planted late, but a mulching with a little good manure, and some liquid manure-water in a rather weak form is increasing the size of the blooms, and their brilliancy of colouring. A few of the best varieties are being marked for more select treatment next year. They will be carefully lifted in the autumn, and planted in well prepared beds much earlier than this season. A good bed of Anemones might be planted to flower in May and June, and the rows made sufficiently wide to admit of Asters being placed between them. In this way a good useful bed for cutting from for the season might be secured.

CAMPANULAS.—Some of the dwarf growing species, such as *C. garganica*, *pumila*, *turbinata*, and *Barrellieri* are now coming into bloom. They are all in pots in a compost made up of the siftings of mortar-rubbish, leaf-mould, and loam, in which they do well. Some of the varieties of *C. turbinata* are well worth attention; they have a dwarf, tufted growth, and large and handsome erect bell-shaped flowers. At Chiswick, Mr. A. F. Barron has planted out a few beds of these which when in flower will well repay inspection. Of the large growing herbaceous Campanulas, *C. persicifolia* and its white variety which is known as *coronata*, and *C. Van Houttei*, a summer-flowering plant with handsome purple blue flowers, well deserve attention. In some old-fashioned gardens *C. carpatica* and *C. carpatica alba* are used as edgings and ribbon lines, and with considerable effect.

ECHEVERIAS.—Old plants of *Echeveria secunda glauca* and *E. metallica*, kept over from last summer in pots, are now blooming freely. *Pachyphytum roseum* also deserves mention. It requires a considerable amount of frost to kill the latter in a greenhouse if the soil be kept dry during winter. They are now furnishing charming drooping spikes of brightly coloured flowers. The *Pachyphytum* can be easily propagated by laying a few of the fleshy leaves on the surface of the soil in which the plants are growing. The more delicate *P. bracteosum* can also be propagated in the same way, but not with so much certainty.

FOXGLOVES.—Well established plants of these are now growing freely, and will require to be tied to stakes as a security against wind waving. A good soaking with water should be occasionally given, as the thick layers of leaves prevent any rain from getting to the roots. Some seed should be sown without delay to furnish a batch of plants for next season.

PENTSTEMONS.—To get a good bloom early in the summer, some plants raised from seed early in the spring of last year, and which bloomed in the autumn, should be kept through the winter. Such plants have grown in a large bush-like size, and are commencing to throw up their flower-stems. Young plants raised from seed sown in August of last year or early this spring, come in well to succeed them. The larger plants form conspicuous objects in the raised border; but for planting out in beds smaller plants are to be preferred. In all the attempts made to improve the Pentstemon and add to the colour of its flowers, we are yet without a blue equal to that of the beautiful *P. Jeffreyanus*, a kind which should have a place in every collection.

RANUNCULUSES.—These are now getting very gay, and hot sunshine soon dims the lustre of the flowers; therefore if a little shading can be employed their beauty will be thereby prolonged. Surface stirrings, top-dressing, and a good watering occasionally are absolutely necessary in the case of beds of this beautiful flower; and an occasional syringing in the evening is also of great advantage. The old scarlet Turban Ranunculus is now very gay in some of the market gardens round London. The earliest plantings of it are made in November, and continued till February and March.

STOCKS.—Plants of these from seed-pans and boxes should be got out into beds without delay. The soil must be good for Stocks if fine spikes of bloom are to be had; and in addition to manure a quantity of leaf-mould is a great assistance. The young plants require close attention, as slugs are apt to attack them and eat them up bodily: a dressing of lime is as good a remedy as can be applied. Stocks require every encouragement to grow into size before the

plants begin to flower. Mulching with manure, and occasional watering with liquid manure are great aids as regards the production of fine heads of bloom.

ZINNIAS.—Like Stocks Zinnias require planting out without delay. The single and double varieties alike require very rich soil in order to bring them to perfection both as regards size and colour. The double Zinnias now in cultivation are simply marvellous when finely grown, and well repay cultivation. In many parts of the country they are finely shown at exhibitions, at which they are always an attractive feature. D.

FLOWER SERVICES IN CHURCHES.

Of the various decorative adjuncts of public worship which have come to be included under the comprehensive misnomer of Ritualism, there is one against which it might seem difficult for the sternest Puritan to frame a plausible indictment. Whatever sacrificial or other theological significance, obnoxious to Protestant criticism, may be attached to chasubles, caddles, or genuflections, the flowers which form the natural charm of our gardens, and the purest and sweetest, if not the choicest, ornament of our drawing-rooms, cannot surely be other than graceful and acceptable in our churches. We are not sure, indeed, that this process of reasoning, simple as it appears, has always been allowed, and, in fact, with the scanty exception of Holly sprigs at Christmas, the use of floral decoration to symbolize festal joy is of comparatively recent introduction into English churches; but the obvious grace and appropriateness of such a usage has done much to disarm opposition, and we believe we are right in saying that in many churches which would be loosely described as moderate Evangelical, or very moderate High Church, where vestments and lights are regarded as an abomination, the altar is fragrant on high festivals with a profusion of blooming nosegays. This result may, perhaps, be due in part, as the reporter of last Tuesday's ceremony in the "Daily Express" suggests, to the happy thought of the rector of St. Katherine Cree in introducing, nearly a quarter of a century ago, a special Whitsuntide flower service into that historic fane for the benefit mainly of the younger part of his congregation. Yet it must in fairness be admitted that, if the character of a religious usage is always to be religiously defined by its origin, a much stronger case might easily be made out against the association of flowers with Christian ritual than against any of those forms and ceremonies which the combined wisdom of Lord Penance and the Privy Council has so elaborately condemned. Chasubles and copes, according to the most probable view, were simply derived from the Roman lay dress of ordinary life under the Empire; the worst that can be urged against them is that they were possibly modelled on the official dress of the Levitical priesthood, and thus carried with them a certain sacerdotal association, though of this there is no evidence. The religious use of flowers, however, is directly connected with some of the most questionable incidents of Pagan worship, though we are not aware that any special Christian festival took the place of the "Floralia," as St. Valentine's Day appears to have taken the place of the "Lupercalia." May is always more or less a festal season of the Church, but the date is determined on wholly independent grounds. And the modern Roman Catholic custom of consecrating the month to the honour of the Virgin Mother, though due, no doubt, to the same instinctive sense of fitness which fixed that period for the feast of the goddess Flora, is of far too recent origin to have been borrowed directly or indirectly from any usages of Pagan Rome. As Dr. Newman puts it—

We give to thee, May, not because it is best,
But because it comes first, and is pledge of the rest.

It may seem strange, however, that other than innocent ideas should ever have been connected with this feast of flowers, and a word of explanation will not be out of place.

For some reason or other the garden was redolent in classical literature of associations the reverse of fragrant. Priapus, of evil repute, was its presiding deity. It gave its name to the most sensual and unmanly of the ancient schools of philosophy, as is implied in Præd's familiar lines on St. Paul preaching at Athens—

And the fair garden's Rose-encircled child
Smiled unbelief, and shuddered as he smiled.

Flora, the Roman goddess of flowers, according to the received tradition retailed by Plutarch, Macrobius, Lactantius, and others, was a courtesan, and left to the city wealth acquired by her profligacy. The date and source of the legend is questionable, but there can be no question at all as to the gross and unbridled licentiousness of the Floralia, or games said to have been instituted in her honour under Romulus, and lasting five days, from April 28 to May 2. Pliny assigns the

origin of her feast to the command of an oracle in the Sibylline books in 238 B.C., but we have little authentic information about it till the observance was restored some sixty years later by the ædile Servilius, acting under orders of the Senate, because the vegetation that year (173 B.C.) had suffered from the inclemency of the weather. Ovid has discussed at length in the Fifth Book of the "Fasti"—

Quare lascivia major
His foret in ludis, liberiorque jocus.

And the nature of the solemnity is still more unmistakably illustrated by Martial, "Ad Catonem nimis Ansterum" (Epig. i. 3). It is related that on one occasion Cato desired to be present at the celebration, but when he found that the people were ashamed to call for the public exposure of the actresses on the stage, according to custom, while he was there, he retired in order not to interrupt the proceedings. It is probable, however, that the Floralia were originally rural festivals observed both in Italy and Greece, which became corrupted after their introduction into towns, and this may have given rise to the uncomplimentary story of the goddess Flora, with whose worship the celebration had then come to be connected. The Christians of course borrowed nothing from these orgies, but they had touching legends of their own about visions of martyrs who consoled their surviving friends with gifts of flowers from Paradise, and the like, and the use of flowers as an adjunct of Christian worship is of very early date.

We have already intimated that the church of St. Katherine Cree, where Dr. Whittemore has established the children's flower service, possesses an historical interest of its own. It was consecrated by Laud when Bishop of London in 1631, and Hume has devoted several pages to what professes to be a detailed account of the ritual used on the occasion, and an indignant comment on the "ceremonies to which Laud sacrificed his own quiet and that of the nation." But one may, perhaps, be permitted to doubt the justice of his strictures so far as it depends on the accuracy of his report, for it does not require the skill of a liturgical expert, or anything beyond the most superficial acquaintance with the Eucharistic service of the Church of England or the Church of Rome—which last Laud was accused of imitating—to see that the ridiculous antics ascribed to him bear not the slightest resemblance to either rite. If, indeed, Hume's account is to be at all literally taken, this most prelatial of prelates must have performed the Communion Service—as, according to a famous Privy Council Judgment of twenty years ago, he was bound to perform it—with the Prayer of Consecration left out. That he pronounced a solemn malediction on any who should divert to profane uses the sacred building which he was engaged in dedicating is possible enough; and it is some consolation in these levelling days, when so many of the City churches are either doomed or actually destroyed, to reflect that St. Katherine Cree still retains unchanged the sacred character originally conveyed to it by the last of the great archbishops, whose biography Dean Hook has left us. Nor is it unreasonable to assume that Laud, who had a keen eye for the didactic aspects of ceremonial, would have viewed with approval the striking spectacle presented by the interior of St. Katherine's on Tuesday evening last. The following description is taken from the fullest report of the service we have come across, and it suggests a very pleasing picture to the eye:—

The fame of the flower service has spread abroad, and from many parts of the metropolis listeners gather together to hearken to the genial discourse that is especially addressed to the younger portion of the congregation on these occasions. Last evening, from an early hour, Leadenhall Street was crowded by these, their destination easily recognizable by the fresh bouquet of spring flowers that all attending are requested to bear as a badge. Still more densely thronged was the interior of the sacred edifice, and it is doubtful whether it had ever held so many worshippers since that January day in 1631, when Laud pronounced within its newly-raised walls the solemn denunciations against those who should pollute them by musters of soldiers, or twisted, profane law courts, which were in after years to be twisted by men thirsting for his blood, into one of the acts of accusation that were to secure to him the crown of martyrdom. Very full of contrast at all times is this quaint specimen of the architecture of the days of the first Stuarts, with its strange blending of the Pointed and the Italian styles, its mullioned windows and Corinthian columns, its goined ceiling, with the intersecting ribs adorned with armorially enriched bosses, and its Ionic pilasters crowned by an entablature and pediment. On its plain Gothic walls the monument where Sir Nicholas Throckmorton, some time Chief Butler of England to Queen Elizabeth, and Ambassador to France and Scotland, reposes at full length, in ruff and plate armour of equal stiffness, beneath a canopy of black marble, ornamented with skulls, crossbones, and hour-glasses, and that setting forth the virtues of Richard Spenser, Turkey merchant, look equally out of place; as to the old-fashioned pews of time-darkened wood, which we have the promise of the rector are shortly to be swept away, and the pulpit recalling in outline a carved wooden goblet. But last night a yet greater contrast was afforded by the inmates of the pews in question. The fresh young faces of children peered up from their box-like recesses, while on the ledges in front of them bloomed bunches innumerable of flowers, far eclipsing in brilliancy of colour the rich hues of the armorial

hearings emblazoned in that great east window, the radiating mullions of the upper part of which recall by their arrangement the terrible wheel to which the Alexandrian virgin was doomed by the tyrant Maximin. One and all had obeyed the request to bring bouquets, and the church was fairly scented with their fragrance.

Hymns were sung composed for the occasion, and Dr. Whittemore preached an appropriate sermon, addressed especially to his younger hearers, from the words of Habakkuk (iii. 17, 18), "Although the Fig tree shall not blossom, yet will I rejoice in the Lord," in the course of which he informed them that the Church would be restored, and the unsightly pews removed, before this time next year. The aisles as well as the pews were crowded, and many parents were present with their little ones, who had been in the habit themselves of attending the annual flower service from childhood. The conspicuous success and popularity of the rite confirm the evidence supplied by the services formerly held at St. Lawrence Jewry and elsewhere of the excellent purposes to which City churches may be applied by incumbents who have a mind to utilize them instead of clamouring for their destruction. Lord Penzance's reign has already been signalized by the virtual closing of one such church, which used to be thronged with devout worshippers both on Sundays and weekdays. Let us hope that many City rectors may be found to emulate the active zeal of Dean Cowie, Dr. Whittemore, and Mr. Rodwell, and that "the three aggrieved," who "come to reform where ne'er they come to pray," may graciously condescend to leave their neighbours unmolested in devotions that are at least preferable to that "worship chiefly of the silent sort" for which our City churches have too long enjoyed an unenviable notoriety.—"Saturday Review."

SOCIETIES AND EXHIBITIONS.

FLOWER SHOW AT ORLEANS HOUSE, TWICKENHAM.

THIS Show took place on Friday and Saturday last, and, considering the liberal schedule of prizes which was provided, the exhibits, though good, were not nearly so numerous as might have been expected. They were arranged on Grass banks under two large tents. New and rare plants were exhibited by Mr. Bull, and attracted much attention. Amongst them we remarked good examples of *Dieffenbachia maculosa*, *Croton Disraeli*, and *C. triumphans*, *Maranta Massangana*, and *Dracæna Goldiana*, all plants possessing special interest. The same exhibitor also furnished a group of coloured-leaved new *Dracænas*. Mr. John Wills likewise showed *Dracænas*, as did also Mr. Legg, gardener to J. S. Rutter, Esq., Cleveland House, Clapham. Mr. Wills had likewise a group of new plants, amongst which we noticed *Arctocarpus Cannoni*, *Anthurium Doehardi*, *Maranta Leopardina*, and a painful of well-grown plants of *Bertolonia Van Houttei*. Roses in excellent condition were exhibited by Messrs. George Paul and Turner; amongst the most conspicuous kinds may be mentioned *Juno*, *Celine Forestier*, *Paul Verdier*, *La France*, *Maréchal Vaillant*, *Madame Willermoz*, and *Charles Lawson*, all beautifully in bloom. Roses grown in 8-inch pots were also shown by Messrs. Paul & Son and Mr. Moorham, gardener to Messrs. Christy, Kingston. Of Orchids, the only large collection came from Messrs. Jackson & Sons, who had well-flowered, healthy plants of *Sarcobolium retusum*, *Odontoglossum citrosum roseum*, *Vanda snavis*, *Dendrobium Devonianum*, and a remarkably attractive plant of *Cattleya Warneri delicata*. Messrs. Rolleston also showed Orchids, amongst which were *Cattleya Regnellii*, *Lelia purpurata*, and *Dendrobium thyrsoiflorum*. Palms and Ferns were well shown by Messrs. Hooper & Son and Mr. Wimssett, and collections of stove and greenhouse plants and Cape Heaths were contributed by Messrs. Jackson. Mr. B. S. Williams exhibited a miscellaneous group of plants, among which were healthy and well-flowered examples of *Genetyllis*, *Anthuriums*, *Odontoglossums*, *Sarracénias*, *Palms*, and *Dracænas*, the whole being edged with small *Crotons*, *Aralias*, *Rhopalads*, and Ferns, amongst which we remarked a neat little plant of the new *Adiantum palmatum*. Mr. Kinghorn, Richmond, had also an effective group of plants, amongst which were *Dieffenbachia Bausei*, *Croton Weismanni*, *Coccos Weddelliana*, and a beautifully-coloured plant of *Ananassa sativa variegata*. Mr. Ley, Croydon, furnished a good collection of Palms, *Crotons*, and *Marantas*; and Mr. Cornhill, gardener to J. S. Virtue, Esq., Outlands Park, had capital examples of *Dieffenbachias*, *Alocasias*, and a very fine plant of *Ananassa bract-ata variegata*. Fine-foliated plants were likewise shown in good condition by Mr. Legg, who had fine examples of *Dracæna Shepherdii*, *Cycas revoluta*, *Alocasia Lowii*, and a grand plant of *A. macrorrhiza variegata*. Indian Azaleas were contributed by Mr. Turner, Messrs. Jackson, Mr. Child, and Mr. Ratty; the last named exhibitor had a dozen standard plants, well-flowered, and devoid of that stiff, formal appearance too often to be found in exhibition plants, especially standards. Show and Fancy *Pelargoniums* were exhibited by Mr. Turner and Mr. James, both of whom had unusually fine plants laden with flowers. Conspicuous amongst the show varieties were *Triomphe de St. Mandé*, *Prince of Prussia*, *Duchess of Cambridge*, *Prince of Denmark*, and *Prince Leopold*; and amongst the fancy kinds the best were *Princess Teck*, *Ellen Beck*, and *Excelsior*. Table plants in 6-in. pots were contributed by Mr. Wills, Mr. Bates, Poulett Lodge, and Messrs.

Hooper & Sons; they consisted chiefly of *Pandanads*, *Crotons*, *Cupania filicifolia*, *Aralias*, and similar subjects. Amongst *Caladiums*, which were furnished by Mr. Morell, gardener to J. S. Rutter, Esq., and Mr. Cornhill, were good plants of *Edward André*, *Reine Victoria*, *Prince Albert Edward*, and the old, but still, in some respects, unsurpassed *bicolor splendens* and *Chantinii*. Mr. James showed well-grown herbaceous *Calecolarias*, and Mr. Bates had a finely-flowered group of *Gloxinias*. *Mimulus*, *Forget-me-Nots*, *Brompton Stocks*, and *Pansies*, came from Mr. A. Dean, Bedford. *Auriculas* in pots were shown by Mr. Turner, who also furnished a collection of cut blooms of *Tulips*. *Roses* in a cut state came from Mr. William Paul and Mr. Mayo, and Mr. Mott, Kensington, showed three hand bouquets. Messrs. Webber & Co., the only exhibitors of fruits, sent a capital basket of English-grown *Grosse Mignonne Peaches*, *St. Michael's Pines*, and baskets of *Muscata* of *Alexandria* and *Madresfield Court Grapes*, the last one of the best early *Grapes* in cultivation, being good alike in appearance and flavour. Messrs. Rolleston, to whom the arrangements of the show were entrusted, filled up all vacant spaces with choice flowering and ornamental-leaved plants from their nursery at Tooting.

OBITUARY.

MISS EMMA OSBORN.—This lady, the daughter of Mr. Robert Osborn, the first of the family connected with the Fulham Nurseries, died on the 25th ult. She was well known to many of the older frequenters of the nursery, and devoted herself to flower-painting, exhibiting occasionally at the water-colour exhibitions in London.

A Centenarian Gardener.—Few of the present generation can date from the year 1777, yet there has just passed from amongst our midst a man whose manhood was spent during the stormy period of '98. James Durham, whose life was spent in the service of Hans Hamilton, Esq., of Sheephill, as gardener for several generations, has just passed away at Blanchardstown, county Dublin. The latter years of his life were spent at Sheephill, where, by the kindness of Mr. Hamilton, he was enabled to spend the last twenty years of his life free from care. Most of his children being dead, he was followed to the grave in Mulhuddart churchyard by a numerous train of grand and great-grandchildren, and also by the numerous retainers of the Sheephill estate.—"Freeman's Journal."

NOTES AND QUESTIONS—VARIOUS.

Maive-coloured Lilies of the Valley.—All my Lilies of the Valley have come up very small this season, and there has not been one white amongst them. They have been a deep shade of maive. Is this unusual?—T. S., Gosport. [You have doubtless got *Convallaria rosea*, which is greatly inferior to the common *Lily of the Valley*.]

Lentils.—The price of Lentils in the west of London is 11. a lb.; abroad they are not half that price. When they become damp they are never really fit for use. They require no soaking before being cooked. The French boil them slowly for about half-an-hour, then drain off the water, add gravy, seasoning according to taste, and finish cooking them on a slow fire for about three quarters of an hour. Another mode is simply keeping them from burning by adding a piece of butter after draining off the water, with a small quantity of finely-chopped Parsley and Garlic.

"Rush Sunday."—A picturesque custom still lingers in the West of strewing the floors of the churches on Whit Sunday with Rushes freshly gathered from the meadows. This custom attains its highest perfection in the church of St. Mary Redcliffe, at Bristol. On "Rush Sunday" the floor is strewn with Rushes. All the merchants throw open their counters for the vicar to take his choice of their flowers; and the parrot, the lecturer, the choir, and the communion rails and table present a scene of great beauty.

Lantana Le Grenadier.—This fine high-coloured *Lantana* formed a prominent feature in a collection of six stove and greenhouse plants shown the other day at Renling. It was well grown and trained much as one would an *Aphelaxis*. The flowers are brilliant maroon flushed with orange, and the trusses being large and freely produced, the plant taken as a whole was most effective.—D.

Cauliflowers and Lettuces under Glass.—This is the kind of season when even the smallest amount of protection has a marked effect on early crops. I had a large pit filled with Cauliflower and Lettuce plants fit for planting out in March, but the unfavourableness of the season induced me to leave enough for a crop of both under glass; the Cauliflowers were planted about 1 ft. 6 in. apart, and the Lettuces between them. The latter have been as crisp as midsummer Lettuces, and we shall have plenty of Cauliflowers by the time the late Broccoli is over, although the lights have been off for some time and utilised in other ways.—J. Groom.

Lettuces under Glass.—I can fully confirm Mr. Hobby's remarks (see p. 399) regarding this subject. I tried the experiment this season and with good results, for I have cut Paris Cos Lettuces during these last three weeks, and shall be able to cut until those in the open ground are fit for use. I made my first sowing in January and another early in March, which will give me a good succession. Where early *Saxa* is in demand, I should recommend every one to try this plan; the trouble and cost are slight, compared with the quantity and quality of the produce.—F. BULLOCK, *Farnham, Götteshof*.

A Fertilizing Flower Pot.—One of the latest inventions is a "fertilizing flower pot," said to be made of earth, firmly compressed. In repotting, pot and all are transferred, when the pot becomes part—and a very useful part—of the soil. Such pots consisting of loam and cow-manure, and readily made in a mould, are very useful.—J. H.

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FLORAL DECORATIONS.

(WILD FLOWERS).

WHILE staying with a friend a few weeks ago in the neighbourhood of London, who regretted she could not have fresh flowers on her dinner-table as often as she could wish (having only a very small garden and no glass structure), I suggested that she might arrange a vase of wild flowers as a change, but the answer which I received was, there were no wild flowers to be had suitable for decorative purposes so near London. Now as there were several large fields, &c., not far from her residence, I thought it strange that no flowers could be obtained, so I went out on a ramble in quest of a few of some description, as I felt certain that in the hedgerows which I had seen there must be some; and my perseverance was rewarded, for I found several varieties which I arranged as I shall presently describe. First as to the stand in which they were grouped: I selected one of basket rock, as it looked more simple and rustic, and, to my mind, most in keeping with the flowers which I was about to arrange in it; its form was that of a flat tazza, above which was a very much smaller one supported gipsy-fashion on a tripod. The flowers which I found were as follows:—Hemlock, Buttercups, May, Bluebells, Vetches, and Ox-eyed Daisies; and in the way of foliage, Ivy, Grasses, and Hemlock leaves, the arrangement of which I shall endeavour to describe. Up the rods which formed the tripod and supported the top tazza, I twined trails of Ivy, selecting young shoots, as the leaves of these are always smaller and of a lighter shade than more matured sprays, and therefore better adapted for decorative purposes. I then took some sprays of Vetch, and twined these also up the rods and amongst the Ivy. I then took some Hemlock leaves and arranged them round the edge of the tazza, so as to droop outwards (these leaves have a pretty Fern-like appearance, and are well suited for this purpose), selecting some young and some of a more mature growth, so as to have as many varieties of shades of green as possible. Next came the May, this I had to break into small pieces, some of which I placed in the lower tazza to form a foundation for my other flowers; but much of this plant should never be employed in floral decorations, as its perfume is sickly, and unpleasant to many. I then worked in my Ox-eyed Daisies, Blue Bells, Hemlock, and Buttercups; the two last-named I placed above the other flowers, in order to give as light an appearance to the whole as possible. The upper tazza I arranged in a similar manner, with the addition of a plume of light Grasses, a few spikes of which I also placed amongst the flowers in the lower tazza round the centre-piece. I grouped four specimen glasses, in two of which were blooms of Hemlock and Buttercup, Grasses, and Hemlock leaves; in the other two Hemlock, pink Clover, Grasses, and Hemlock leaves. The leaves of the Hemlock picked for this purpose should be very young, or they will be found to be too large and coarse-looking. When the above arrangement was finished, it had a very pretty appearance, though composed, one might almost say, of a handful of weeds, which were picked within $6\frac{1}{2}$ miles of the centre of London.

ANNIE HASSARD.

TWO NEW AURICULAS.

ABSENCE from home prevented me sending you sooner some remarks on a few of the less well-known Auriculas which I saw at the Crystal Palace and at Manchester. However, they may be of use to other lovers of Auriculas who were not fortunate enough to have seen the two fine shows of the National Auricula Society. Mr. Simonite, of Sheffield, exhibited a seedling, called Frank Simonite, which is, indeed, a valuable addition to that rather weak class, the white edges. It is a fine, bold flower, a grand truss, and holds its head well up above its abundant foliage. It is circular, flat, and even; its paste is dense and smooth; the body-colour is a lovely

shade of violet. I am exceedingly glad to find that two such growers as Mr. Simonite and Rev. F. D. Horner are turning their energies towards violet, blue, and many body-colours in the edged flowers. For too long a time the old traditional law which forbid any body-colour except black, or only tolerated maroon, has operated injuriously on the popularity of the Auricula, by giving a sameness and tameness to the flower which its lovers sometimes were hard pressed to vindicate. But in the hands I have mentioned we may confidently look for a great increase of brilliancy by the introduction of those body-colours into otherwise well-pointed flowers. There is, however, in everything good the *aliquid amari*; and the bitter in the Auricula lover's cup is this, that Nature seems to have sternly laid down the law, that no shade of blue or violet in the body-colour shall co-exist with a bright gold tube. Alas, that it should be so! for, to my mind, a bright eye in an Auricula is as desirable, and a weak, dull, empty-looking one as unlovely, as in the human countenance. Happy will be the man whose patient care and skilled observation shall wrest from Nature the secret of this law, as he will then be on the fair road to brightening up the lovely but languid faces of Frank Simonite and C. J. Perry with a beaming golden eye. John Simonite is another of Mr. B. Simonite's white-edged seedlings. Being sent out by him—or rather shown by him, as it is not yet sent out—is guarantee of its high qualities. It is round, flat, and smooth, of course; the paste is good; the body-colour is black; the tube is only lemon-colour, but is not dull. Indeed, with such a body-colour there is no reason why it should not be far from dull, as black grounds often give the brightest of gold tubes. We may well expect that some future child of Mr. Simonite will be an improvement on this. Every judge has, more or less, to play the unpleasant part of *advocatus diaboli*, and, therefore, I am in duty bound to say that the weak point in John Simonite is a sunken tube. I believe, however, that sometimes this defect, though present in the seed-plant, wears away in course of time and cultivation. Let us hope this may prove the case with this very excellent variety.

FREDERICK TYMONS.

Cloghran, Co. Dublin.

CURIOUS EFFECTS OF GRAFTING COLEUSES.

LATE last summer I grafted certain kinds of Coleus, the most remarkable of which is Duchess of Edinburgh, grafted with Brillant de Vaise and Golden Gem. I kept them during the winter partially at rest, and in February I potted them and started them into growth on a gentle bottom-heat. As soon as they had made fresh leaves I found that Brillant de Vaise had inoculated the stock, the leaves on one shoot above and one below the graft having become spotted and mottled with dull yellow and reddish brown, with an occasional flake or two of the magenta rose-colour of Duchess of Edinburgh, while Golden Gem, on the same plant, remains unaffected. Some time back I removed the top of the stock which grew very vigorously, some leaves being wholly green, others dark velvety-crimson edged with green, and mottled and blotched with yellow and dull reddish-brown. Up to the present time this plant has not altered. Of the next two breaks which I took off and struck as one would cuttings, one is almost the same as Duchess of Edinburgh, with spots of yellow here and there, and some of the leaves are very beautiful, being pink, cream-colour, and light green; this is the prettiest shoot, but the slowest grower. The other is dark crimson edged with green, and very much mottled with amber; this is now becoming very attractive. I also grafted C. Brillant de Vaise on C. elegans, which has a yellowish-green ground heavily netted and veined with bluish-crimson. This was also inoculated, the leaves of the stock turning quite green. I also grafted others, on one of which I put five varieties, using C. Emile Chaté for the stock, and the following for grafts, viz.:—C. Merrimac, Lady Burrel, Duchess of Edinburgh, ruber, and Beauty of Widmore, but as yet no change has taken place; they all exhibit equal strength except the last, and that is on the centre shoot of the stock. I find that Duchess of Edinburgh, with its many and varied hues of colour, comes much brighter, and retains its leaves much longer if grafted upon C. Souvenir de Lierval.

R. H. B.

NOTES OF THE WEEK.

WISTARIA WREATHS.—In Mr. Robert Osborn's garden at Fulham I was charmed the other day at the sight of several specimens of *Wistaria garlanding* in the most natural way old Thorn trees and a standard *Magnolia grandiflora*. One is so accustomed to see the plant trained that its unique qualities as a free climber are seldom allowed fair play. The delicate wandering shoots running over the tree, and the blue racemes gracefully mingling with the Thorn flowers, form a lovely combination, and one which it is gratifying to know can be formed of simple hardy materials in the open air.—R.

TRICHONEMA RAMIFLORUM.—This pretty little denizen of the Riviera has been very effective during the bright sunshine of the last three days; it is one of the latest of the family to bloom. In size of flower it little exceeds *T. Columnæ*, but it is much brighter in colour, pale mauve marbled with darker lines and a yellow throat. The blooms are very numerous, and a patch of them when fully expanded is a very pretty sight.—H. HARPER CREWE.

AN INNOVATION AT SOUTH KENSINGTON.—The Council of the Royal Horticultural Society must have probably misapprehended the feeling that generally prevails among horticulturists, when it resolved to introduce the public presentation of the medals to exhibitors. Horticulturists are fond of exhibiting to the public gaze the plants and flowers that are the products of their industry and skill, but wisely shrink from making exhibitions of themselves. The first attempt at this awkward change at the usually pleasant meetings at South Kensington was not a very attractive spectacle: the loud voices of the speakers could not be heard in the lofty glass house. The prize winners answering their names and then crawling up the steps to the dignitaries above reminded one irreverent observer of the ascents to the throne in the Vatican, when a very high personage allows certain of the faithful the honour of kissing his slipper.

MUSCARI ATLANTICUM AND M. ARMENIACUM.—These two handsome Grape Hyacinths have been in full beauty during the last fortnight. The former was, I believe, first introduced into this country from the neighbourhood of Oran by the late Mr. Giles Munby, to whose kindness I am indebted for the few bulbs I possess. With the exception of *M. armeniacum*, it is the last of the family to bloom. It seems to come between *M. conicum* and *M. racemosum*, but is easily to be distinguished from both by its time of blooming and the colour of its flowers, which are a bright Prussian blue. *M. armeniacum* has long been cultivated by Messrs. Osborn, of Fulham, to whom I believe most of us are indebted for the bulbs we possess. My single bulb came to me from this source through Mr. Ellacombe. It has this spring thrown up no fewer than five heads of bloom which will, I hope, yield seed. Its flower-spike is longer than that of any other species, and the bells have a delicate lavender-mauve hue unlike those of the rest of the family.—H. HARPER CREWE, *Drayton-Beachamp Rectory, Tring.*

AOTUS GRACILLIMA.—This old-fashioned New Holland plant is seldom seen in good condition, but when well flowered, it is one of the most effective of indoor plants. Examples of it in the Pine-apple Nursery, grown in 8-in. pots, bear from ten to twelve long, gracefully-drooping branches, thickly beset with small, bright orange, *Genista*-like blossoms. If when in bloom good plants of this *Aotus* be placed in hanging baskets, the branches droop lightly over the sides and form attractive objects. A fine specimen of it was exhibited the other day at South Kensington by Mr. Ollerhead; it was 5 ft. or 6 ft. in height, and, being allowed to grow in a natural manner, its profusion of slender thickly-blossomed branches rendered it strikingly effective.—S.

DWARF COCKSCOMBS.—Cockscombs, when in flower, are attractive under any circumstances, but they are seen to best advantage in May or early in June, in the shape of neat little plants, suitable for placing in the front rows of conservatory stages. Some grown for this purpose in Mr. Hudson's garden, Clapham, are now in beautiful condition; the seed is sown in pans, and when the plants are up they are potted into 3-in. pots, and when the combs are visible the tops are taken off with two pairs of leaves attached to them, and inserted in 5-in. pots in sandy soil, and plunged in a brisk bottom-heat, and in a few days roots are formed; after that the combs speedily expand, and during May and June the cuttings form plants not more than 5 in. or 6 in. in height, each furnished with healthy green leaves and a brightly-coloured comb, measuring lengthwise from 6 in. to 8 in.—S.

LARGE TOMATOES.—At the Royal Horticultural Society's meeting, held the other day at South Kensington, Mr. Iggalden, of Ossett Hall, showed a dish of Hathaway's Excelsior Tomatoes, the largest and handsomest which we have seen so early in the year. They were the produce of plants growing in boxes placed at the end of a

Vinery, and Mr. Iggalden attributes his success to his having fertilised the flowers as fast as they expanded. Thus treated the fruit set quickly and grew much more rapidly than would otherwise have been the case. Fertilising the flowers would of course be impracticable where large quantities of plants are grown, but it is an operation that is amply rewarded by abundance of large, finely-shaped, smooth-skinned fruits of first-rate quality.—C. S.

BRITISH POLYGALAS.—Those interested in these small plants will find a good account of them by Mr. A. W. Bennett in the June issue of the "Journal of Botany," which, however, publishes the descriptions without the plates referred to in the text.

EARLY CHERRIES.—Cherries of large size and fine colour, though, as one might expect, not quite ripe, come now in great quantities to the London market from the neighbourhood of Avignon. Apricots from Spain continue to be very numerous and well-flavoured.

DENDROBIUM CONCOLOR.—Few Dendrobies are more showy than this when well flowered, and growing as it does on blocks of wood or stumps of Tree Ferns, suspended from roofs of houses, its large, pendent clusters of pale yellow blossoms are very attractive, and last in good condition for a long time. Excellent plants of it grown in this way are now flowering profusely in Messrs. Veitch's nursery at Chelsea.—W.

THE INNER TEMPLE GARDENS.—By the kindness of the Benchers these gardens are now open to the public every evening between the hours of six and eight o'clock. The privilege thus granted is taken advantage of principally by the poor children inhabiting the neighbouring courts and alleys, many hundreds of whom enter the gardens every evening. The gardens will continue open until the end of August.

RHODODENDRON JASMINIFLORUM.—This, one of the most beautiful of all tender Rhododendrons, is now flowering freely in a greenhouse in Messrs. Veitch's nursery at Chelsea. Its blossoms, which are borne in unusually large clusters, have a remarkably chaste, waxy appearance, and they are moreover very sweetly scented. Both as a decorative plant and for furnishing cut bloom, this *Rhododendron* has few equals. The spice-scented *R. Edgeworthi*, in the same house, is also bearing numerous large, white flowers, delicately shaded with pink, and the large, creamy-coloured *R. Veitchi* is likewise finely in bloom.—C. S.

TESTIMONIAL TO MR. WILSON.—It has been decided, at a meeting held on the 26th ult., to present a testimonial to Mr. F. W. Wilson, who has lately left the Crystal Palace after twenty-five years' service. Mr. Wilson's unflinching courtesy and thoroughly zealous efforts to promote and carry out successfully the various interesting natural history and other shows at the Crystal Palace have earned for him the respect of a wide circle of friends. Mr. C. E. Elliott, of the Ceramic Court, Crystal Palace, has consented to act as honorary treasurer and secretary, and he will be happy to attend to all communications in connection with the fund or receive subscriptions.

PRIZE ROSES.—Prizes, consisting of two silver cups of the value of ten guineas each, given by the Hon. and Rev. J. T. Boscawen, for Tea and Noisette Roses, at the Bath Show the other day, were awarded as follows:—Twelve varieties, three blooms of each, distinct—Silver cup to Mr. C. Turner, of Slough, for *Devoniensis*, *Maréchal Niel*, *Celine Forrester*, *Madame Willermoz*, *Niphotos*, *Gloire de Dijon*, *Safrano*, *Souvenir d'un Ami*, *Marie Van Houtte*, *Madame de St. Joseph*, President, and *Madame Falcot*. The cup in the amateurs' class was awarded to Mr. Charl. Clarendon Park, Salisbury, who showed, amongst others, good blooms of *Maréchal Niel*, *Catharine Mermet*, *Devoniensis*, *Celine Forrester*, *Amabilis*, and *Adam*.

NEW PARKS FOR SALFORD.—The Salford Town Council some time since determined to construct three additional parks—at Seadley, Broughton, and Ordsall—for the recreation of the rapidly-increasing population of that borough. Seadley Park was opened a year ago; the Albert Park, Broughton, was on the 12th ult. formally dedicated to the use of the public; and the park in the Ordsall district is expected to be completed in a little more than twelve months.

SALE OF THE GARSTON VINEYARD.—This well-known establishment, founded by Mr. Meredith, and lately the property of the Cowan's Patent Company, has again changed hands, and, as we learn, has been purchased by Mr. John Cowan, lately managing director, for a considerable sum, the Company having decided on confining their business to the London establishment.

CHISWICK HOUSE.—We hear that His Royal Highness the Prince of Wales has given up Chiswick House, the lease having expired. Mr. John Wills, of South Kensington, has been appointed to supply the floral decorations and direct the gardening at Marlborough House

THE NEW RHUBARB.

THIS, the true *Rheum officinale*, is one of the handsomest plants which has been introduced into our gardens of late years. According to the Chinese, this yields the root known to pharmacists as Canton or Russia Rhubarb. It has for some time been successfully cultivated in botanic and

long been a favourite garden plant. It is found growing wild in the neighbourhood of Mount Rhodope in Asia Minor, and on the banks of the Volga in Russia, where it goes by the names of Great Patience, Alpine Patience, or Monk's Rhubarb. The regions in which this species of Rhubarb is found are almost inaccessible, and Dr.



The New Rhubarb (*Rheum officinale*).

other gardens. The plant is a very valuable acquisition, although it is not certain that it is the only variety which furnishes good Asiatic Rhubarb. The family of Rhubarbs is one which is well known. They have, generally speaking, large palmate leaves, green above and whitish underneath, and bear yellowish-white terminal panicles of flowers. Common Rhubarb (*Rheum Rhaponticum*) has

Thorel, who has visited this part of the Asiatic continent, tells us that, so to speak, its habitat is surrounded by a range of mountains which almost blockade the approach of travellers from the south. It is on the plateaus inhabited by the Grand Lamas, which seem to be almost shut out from the rest of the world by impenetrable fastnesses, that this Rhubarb finds its home. Most of the so-called Chinese Rhu-

barb, says Dr. Thorel, comes from this part of Thibet, but a certain amount is also found in the mountains of Yunnan and Setchonan in Chinese Tartary, especially on the slopes of Mount Likiang, a mountain over 16,000 ft. high, the summit of which is covered with perpetual snow. It is said to thrive best at an altitude of 12,000 ft. above the sea-level, which is close to the snow-line in these latitudes. According to Dr. Baillon, the roots of the *Rheum officinale* grown at Bouffemont closely resemble the Rhubarb of commerce in colour and general appearance, but to the horticulturist this beautiful species is more interesting as an ornamental plant. As will be seen from the accompanying woodcut, this plant, on account of the beauty of its leaves and flowers and the boldness of its habit, is entitled to become as great a favourite in this country as it is in France. It is of luxuriant growth, easily propagated, and perfectly hardy, bearing our northern winters with the greatest impunity. It is really a grand plant for placing near the shrubbery on the turf, or for the wild garden, where its fine form would be very striking. It would be well in certain gardens to form a little colony of fine-leaved, hardy plants; in a small glade with rich soil a novel and fine effect could readily be produced by a good selection, embracing the *Ferulas*, *Heracleums*, *Rhubarbs*, *Acanthuses*, *Yuccas*, the common *Artichoke*, *Gunnera scabra*, and many other vigorous, hardy subjects that have been enumerated in *THE GARDEN* from time to time. C. W. Q.

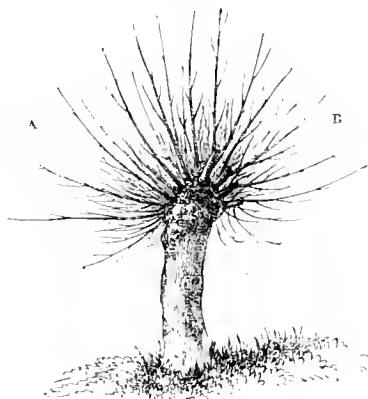
TRIMMING TREES IN HEDGEROWS, &c.

THE scientific agriculturist may plead that wide-spreading trees and picturesque hedgerows are a bar to improved agriculture, and the profitable introduction of the steam plough requires the fields to be of regular shape and of considerable size, but in highly-cultivated districts there is often too great a tendency to trim and lop every tree into something approaching the appearance represented by the annexed sketches. The man of energy, whose sole aim and ambition in life is to make



two blades of Grass or two ears of Corn grow where only one grew before, is doubtless a very desirable man to have in any community, but unless one takes a comprehensive view of things there is a danger of falling into error. Trees, like birds and all other living things, have important functions to perform in the economy of Nature; meteorologists tell us that the rainfall of a country or district is largely influenced by the sparseness or plenitude of its tree growth; and we all know something of the value of shelter, not only

to man and beast, but to all cultivated crops; though I admit, from the artist's point of view, the grey, Moss-grown Pollard may be effective in the foreground of a tree picture, yet deformity in any shape, if often repeated, must have a depressing effect. There is, I know, abundance of room for improvement in rural districts in the arrangement and management of hedgerow timber, but that improvement should be obtained by judicious thinning, by removal of the worthless



trees, not by ruthlessly lopping off the heads and branches of all alike. At all seasons, but especially now, there is a wondrous charm in woodland scenery, and no man of taste should permit the trees bordering his field to be ruthlessly headed down or trimmed up like bare poles. Good sound timber is almost as essential as Grass or corn, and the lopped or trimmed-in trees are always worthless, except for fire-wood. Therefore, apart from the outrages often committed upon Nature by the woodman's axe, there is generally, when all things are fairly considered, little or no gain derived from the practice. E. HOBDAY.

HALL PLACE, TONBRIDGE.

THIS, the residence of Samuel Morley, Esq., M.P., adjoins the village of Leigh, near Tonbridge. The mansion, a modern erection, is situated on a gentle eminence, and surrounded by a well-wooded deer park. When the estate came into the hands of the present owner, the old mansion was taken down, and the present one built on a new and more elevated site; the original pleasure grounds and kitchen gardens were, however, retained, and much enlarged. The surplus material from the foundations of the mansion was formed into a mound and planted. By means of this mound and plantation, the walls and other erections connected with the kitchen garden are wholly concealed from the grounds on the private front of the house. On this mound is built a brick tank capable of containing over 1000 gallons of water, supplied from a well in the valley. The water is forced upwards through a line of pipes about half a mile in length by means of the water power of an adjoining stream and the use of a turbine wheel. The elevation of the tank—about 30 ft. above the average level of the ground—is found to supply ample power to work hydrants, with which the gardens are everywhere provided. On the north or carriage entrance front, the lawn slopes towards a lake about 13 acres in extent, formed when the mansion was built. This lake occupies a natural valley in the centre of the deer park, and beyond, on elevated ground, is a considerable breadth of woodland, consisting chiefly of Oak, Elm, Beech, and Lime. During the progress of improvement, a considerable number of large Horse Chestnut and other deciduous trees were successfully transplanted when in full leaf, but of these we hope shortly to give more detailed particulars. Many fine and interesting trees are scattered about the grounds, such as Cedars, *Taxodiums*, and various Conifers, including an example of *Pinus insignis*, 40 feet high. H.



HALL PLACE, TONBRIDGE (Designed by Mr. Manscock).

- 1. Kitchen Garden and forcing-houses.
- 2. Terrace.
- 3. Open lawn.
- 4. Reservoir.
- 5. Stables.
- 6. Forecourt.
- 7. Parterre garden.
- 8. Wilderness.
- 9. Lawn on carriage entrance.
- 10, 11, and 12. Bridges.
- 13. Boat-house.
- 14. Park grounds.
- 15. Grass walk.

PENTSTEMONS AND THEIR CULTURE.

AMONGST Pentstemons we have a wonderful wealth of colour varying from pure white to glowing scarlet, the intermediate shades consisting of pink, rose, purple, carmine, and purplish-lilac. If good plants of Pentstemons be put out by the end of April; they will commence to bloom about the middle of June, and will continue to yield a succession of flowers until winter sets in. They require a deep, moderately rich soil, and a position fully exposed to the sun. They can be raised from seed any time between March and August; but those raised early in spring will bloom the same year, and those sown after midsummer will not flower until the following season. The seed should either be sown in pans in light, fine soil, and placed in a close, warm frame, or on a gentle hotbed. As soon as the plants are large enough to handle, they should be pricked out on a bed of rich soil, encouraged to grow, and planted in their blooming quarters as soon as possible. When raised in the autumn, they should be pricked out into pots or boxes, and wintered in a cold frame, or they may be wintered on a sheltered border, and protected during severe weather with mats or Spruce branches. The best way, however, is to procure a stock of named sorts, and perpetuate them from year to year by means of cuttings, as is done in the case of Verbenas and Zonal Pelargoniums; for, out of say a hundred seedlings, perhaps not more than half-a-dozen will be worth saving. When a stock of named sorts is obtained, young plants can be struck in the autumn, and the old ones destroyed when a sufficient quantity of cuttings has been obtained. There is no difficulty as regards propagating Pentstemons; on the contrary, they may be increased and grown in every respect the same as common shrubby Calceolarias. Towards autumn the plants throw up numerous side shoots, and as many of these as are required may be taken off and struck under hand-lights or in cold frames. During winter they should be protected by a cold frame, and planted out early in April in a deep soil and in a sunny situation. The following are good sorts and well worth growing, viz.:—Black Knight, Bridesmaid, Agnes Laing, Grandis, Snowdrop, Henry King, Painted Lady, Stanstead Surprise, Olio, Victor Hugo, The Emperor, Queen Victoria, Madame Patey, James Rothschild, Maria Field, Mrs. A. Sterry, Albert Jardieu, Colin Bell, Duc de Lorraine Eclat, Flower of the Day, George Sand, Sarpasse, and Souvenir, de St. Paul. K. R.

GROWING FERNS IN LOAM.

SOME time ago we pointed out the propriety of using more loam and less peat for Ferns, and said we intended to use loam more generally in future, and we have now to record farther experience in the matter. Early in February we potted about 300 plants, consisting of a general collection of stove Ferns, in a compost of loam and leaf-mould and a very little peat, one-eighth perhaps, or less; in fact, all the strong-growing sorts of any kind were potted in the compost used for the stove plants, and for the more delicate *Adiantums* more leaf-mould and sand were added, but still leaving the staple pretty loamy. The plants are now beginning to grow away pretty freely, and, saving the *Gymnogrammas*, which do not show much difference as yet, all the specimens may be said to exhibit a marked increase of vigour, particularly the Maiden-hair kinds, which are producing fronds freely at least three times as large as they did in a compost consisting principally of peat, and the colour of the foliage is all that could be desired. The plants were looser in taking to their shift than usual after being potted, and we were beginning to doubt the advantages of loam; but, now that the roots have got hold, they are sending their fronds up clear of the old foliage with unusual vigour. No liquid manure has been given any of the plants as yet. We are not here speaking of the advantages or disadvantages of having large plants; but it is good to know what sort of compost suits the Fern best. With us the loam will be an advantage, for we need large plants in small pots for furnishing. Our loam, we should state, is of the heaviest kind, not to be actually clayey, for which allowance must be made; some of the brown turfy loams that we have seen would probably be better unadulterated for Ferns. At all events, we have no hesitation in saying that for the general run of stove and greenhouse Ferns peat is entirely unnecessary, and too hungry a compost to use in large proportions. A well-known London nurseryman, who called upon us when we were having the plants potted, predicted disappointment by using the loam, particularly of the Maiden-hair varieties, but his prediction has been falsified.—“Field.”

Large-leaved Caladiums.—I find that these do best when grown on without shifting—that is, when put at the first into the pots in which they are to remain. Amongst a number of plants treated in this way we have at the present time a specimen of *C.*

esculentum, which was potted early in March in a 10-in. pot. It has now fine healthy leaves, each larger than its predecessor—the first leaf, being 2 ft. 9 in. in depth, and proportionately broad and the last formed, only unfolded a day or two, 3 ft. deep, and over 2 ft. across, and it is still growing. Whether the plant will now flower or produce another leaf still larger remains to be seen; but had it been shifted into a large pot, no doubt the leaves would have been checked in their growth. I once had a plant of the same kind, which was treated in the same way (one bulb being potted at the beginning in a 14-in. pot), that had leaves close upon 5 ft. deep. When placed on a man's back it completely covered it, and it was so broad that it could be folded round him, looking very much like a coat with one tail.—J. S. W.

Gilbert's A. F. Barron Melon.—After a second season's trial I can strongly recommend this as a late summer Melon, especially where facilities for supplying bottom-heat are limited. In many places early Melons are not cared for, but a really good Melon in August is always everywhere appreciated. Those who are clearing out pits that have been used for bedding plants need not wait to raise the young Melon plants in pots, unless they have the plants ready, as, if the seeds be planted in the hills of warm soil where they are intended to remain, the plants will come up quickly and do well. It is perhaps as well to plant three or four seeds round the hill of soil and finally thin out to two, selecting of course the best.—E. HODDAY.

Sarracenia at Glasnevin.—To any one who takes an interest in quaint forms and the anomalous development of vegetable life, the North American Pitcher-plants (*Sarracenia*) just now in flower in the Victoria-house at Glasnevin would be quite a study. On a shelf stand, in single file, some three dozen or more healthy specimens of these singular plants, comprising, we should think, all the species in cultivation. Amongst them are several specimens of *Sarracenia purpurea*; also examples of *S. flava*, with its pale greenish-yellow flowers, in striking contrast with those of the preceding. Then we have Dr. Moore's hybrid *S. Mooreana*, perhaps the most interesting of the series, on account of its stately habit and striking resemblance to both its parents (*S. flava* and *S. Drummondii*). Then come *S. rubra*, *S. variolaris*, and though last, far from being the least interesting, the Parrot-like *Sarracenia*, *S. psittacina*, with its singular anaphoræ, not standing up like those of the others, but radiating from the crown, like the spokes of a wheel, and with perfect regularity, and resting on the surface of the pot. The Glasnevin specimen has three flower-scapes, but the flowers were not quite expanded when we (“*Irish Farmers' Gazette*”) saw them last week. Taking it all in all, it would be difficult to meet elsewhere with a series of these singular productions so extensive and varied as they are here. It must not be inferred from the mention of the Victoria-house that they are grown at Glasnevin in a high temperature. No such thing. From the time the *Victoria regia* dies down in autumn till about the present time there is no fire-heat whatever, or, at all events, very little, applied to this house.

Hybrid Foxgloves.—I can endorse all “A. D.” says (see p. 111) about Foxgloves. I was the raiser of *Digitalis gloxiniaeflora*, and had many years ago far more beautiful varieties than any I have seen for some years. I have hybrids between *Digitalis purpurea* and *D. grandiflora* which will be very interesting and beautiful, combining the perennial character of *D. grandiflora* with the colours of both parents. These hybrids seed freely, but are very shy in vegetating, and I may safely say that no two plants are alike. Foxgloves need fear no rivals, either in the wild garden, the woods, or the backs of flower borders. I have bloomed them in pots in cold greenhouses, and it is in these they may be operated upon by the hybridizer. They will grow almost anywhere, and are still capable of vast improvement as regards the shape of the flowers. I once had one which bore very large bells, so open as to show fully a beautifully spotted interior on a white ground; this came true from seeds. All the hybrids between *Digitalis purpurea* and *grandiflora*, *D. lutea*, or *parviflora*, will be perennial in habit, and choice forms may be easily propagated by means of cuttings, which seem to thrive as well as seedlings when once they get a start.—W. ELLIOTT, *Stapleford Hall, near Nottingham.*

Fungus in Hotbeds.—Can any of your readers give me any information as to the cause of the growth of a fungus in a hotbed, which I made some weeks since for the purpose of starting *Achimenes*, *Gloxinas*, &c., consisting of four loads of good stable manure? The fungus in question grows very rapidly, and entirely blackens the leaves of the plants, the soil, and the pots, and though I dig up a great deal of it almost daily, still I find that it affects the growth of the plants very considerably. I have just planted out my *Cucumber* plants in the frame, but I fear they will never produce any fruit. I have made hotbeds for several years, but have never met with a fungus of this nature before. I shall be glad to know if there be any means of overcoming it short of destroying the bed altogether.—J. B.

THE FLOWER GARDEN.

A NOBLE HARDY EVERGREEN BAMBOO.

WE have at various times called attention in THE GARDEN to the merits of this very distinct Bamboo, which thrives freely in various parts of the southern counties. It does not, like various other valuable subjects of a like nature, require a warm mild or seashore climate, as we have noticed it thriving vigorously in the home counties, and even doing fairly well in the smoke in the Duke of Buccleuch's garden at Montagu House. We, however, had no idea of its full value till the past winter, throughout which several finely grown bushes of it have been the finest evergreen ornaments of the Parc Moncean; one of these was drawn for us by Mr. Godard, in January, and from the sketch the accompanying engraving was made. The plants were about 10 ft. high, of very free growth, and well furnished, and the leaves, which are considerably broader and larger than those of the other hardy Bamboos, are of a fine green. It would be difficult to find more graceful ornaments for the flower-garden or pleasure-ground.

IMPORTING NEW WATER LILIES.

IN a recent number of the "Botanische Zeitung," Dr. R. Caspary describes a new African Water Lily, which he names *Nymphaea zanzibariensis*. But it is not so much for the sake of the new species that we refer to it here, as for the opportunity of repeating his instructions respecting the best way of transmitting seeds of these beautiful aquatics for long distances, to preserve their vitality. For many years Dr. Caspary has made the *Nymphaeaceae*, or rather the genus *Nymphaea*, his special study, and it has been his object to cultivate as many forms as possible in order to test the value of characters which can only be imperfectly seen and appreciated in dried specimens. In his endeavours to introduce different species, he has gained some experience in the conveyance of their seeds, which may prove useful to some of our readers. Sent dry from the tropics, and exposed to great heat on the journey, they are almost certain to lose the power of germinating; and sent in water they are quite certain to rot. Dr. Caspary lost many valuable consignments from various parts of the world before he thought of the means described below. True, it is only in part new, and no more than the adaptation of an old idea. It is simply drying the seeds quickly after collecting, and then squeezing them into moist loam or clay in a tin box. When the clay or loam is dry the box is soldered down air-tight. In this way the seeds may be sent for any distance without losing their vitality. Dr. Caspary has also frequently received good seeds sent from very distant countries, which had been embedded in moistened powdered charcoal, and otherwise treated as with clay or loam. J. M. Hildebrandt, who discovered and introduced seeds of the new species described by Caspary, used white carbonate of lime (chalk), and when the seeds arrived they were in a solid mass of this substance. They were at once put into a basin of water, which was kept at a temperature of 22° R. (81°·5 Fabr.). They laid dormant for two months, and then germinated in numbers. Many plants were safely wintered in 1874-5, and in the course of 1875 seven strong plants in large bowls produced flowers. In 1876 one tuber was planted in a box 4 ft. square, and this was sunk in a tank 23 ft. in diameter in a house in the Botanic Garden at Königsberg. Treated thus it developed into a fine plant



Rambusa Metake (10 ft. high).

and bore flowers up to 9 in. in diameter, and always two or three together; and the leaves were 2 ft. in length. It proved to be a new species; and, more than this, the most beautiful of the genus—eclipsing even *N. gigantea*. The sepals are of a deep green, and destitute of spots on the outside, with a broad crimson margin, and of a deep violet-crimson within; petals deep blue, with a whitish spot at the base, the outer ones crimson near the base; and the outer filaments yellow. Dr. Caspary concludes with an appeal to those in a position to do so, to send him seeds of African species not in cultivation, especially the forms found in Lower Egypt in the inundated rice fields; and he is willing to pay 30s. or 50s., or more, for good seeds of a species. He would be glad to get the *N. cœrulea albiflora* of Sieber. Such fruits should be selected from which the parts of the flower have rotted away, and placed in a moist box. In the course of three or four days those containing mature seeds will have burst, and the seeds should then be placed in warm water to allow the coil to rot off, which, according to the "Gardeners' Chronicle," will take place in a day or two. The seeds which have sunk to the bottom should then be taken out, slightly dried, and packed in the manner described above.

Growing the Fragrant Water Lily.—If lovers of flowers only knew how easily the fragrant white Water Lily (*Nymphaea odorata*) could be cultivated, we are quite sure that it would be grown

far more extensively than many other less fragrant and beautiful flowers that take more time and trouble to cultivate. This Lily once planted in a pond or small stream that does not entirely dry up in summer, will need no further care, and will increase from year to year. People who have not the facilities for growing it in a pond or stream, can have their Lily gardens in tubs and aquariums where they can admire and gather this most fragrant and beautiful flower that grows on land or water. Take, for instance, a strong barrel, saw it in two, fill this one-third full with fine black garden soil, or meadow mud if handy, plant the roots in this mixture, covering them 2 in. deep, add water gently so as not to disturb the roots until the tub is full. This is all the care needed—always keep the tub full of water. Set this on a brick or board platform

in any place you desire. The tubs with their contents should be placed in a cellar during the winter, kept from frost, and not allowed to entirely dry up. For ponds and streams, tie a stone close to the roots, large enough to sink them, and drop this into the pond or stream where you wish them to grow. For aquariums put in 5 in. of fine black loam, cover the roots 1 in. deep in this, and sift on the loam fine sand enough to entirely cover it.—B. MANN, in "Gardeners' Monthly." [This is the American hardy white Water Lily, not ours. We hope some readers of THE GARDEN have already established it. We believe it is obtainable in some nurseries.]

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Veronica Halkei at Glasnevin.—This is stated (see p. 420) to be a valuable greenhouse plant. It is quite a hardy shrub, or nearly so, at Glasnevin, where it is planted at the foot of a wall, and where several plants of it in aspects north and south are now flowering profusely.—A. BALFE, 28, Westland Row, Dublin.

Ivy-leaved Pelargonium Nemesis.—This beautiful variety has brilliant magenta or rosy-crimson flowers. Its dwarf, compact growth and free-flowering habit render it suitable for forming a bed in the flower garden. It is also attractive as a basket or vase plant for conservatory or terrace decoration during the summer months. The first flower-buds open with a bright carmine tint, and gradually change to magenta. In its respective colour it is the finest yet offered for summer groups or pot culture.—E. G. H.

THE KITCHEN GARDEN.

BROCCOLI AND ITS CULTURE.

THIS is one of those vegetables the culture of which needs more than ordinary care, and the keeping up a supply from the time when Cauliflowers are over until the following summer requires some practical experience. As a rule, in private establishments Broccoli is cut when about one-half its full size—therefore the great aim should be, not the production of gigantic heads, but a constant succession of firm compact Broccoli of medium size. Some choose a few good kinds and make successional sowings, whilst others select a number of varieties that will naturally succeed each other, although they may all be sown and planted out at the same time. This is doubtless the best plan when the ground intended to be occupied with Broccoli can be all sowed and got ready at one time, but it frequently happens in establishments in which the demand for vegetables is greater than the ground allotted for their culture can supply, that part only has to be planted as the ground becomes vacant. Many people plant Broccoli between rows of Potatoes, and where the ground is limited, and the kinds of Potatoes grown are dwarf and planted a good distance apart, it is doubtless a good system. Where this plan is adopted, the very hardest pieces of land should be selected for the Broccoli; for the firmer the soil, the better they stand the severity of the winter. They also come into use more regularly in rotation in their several seasons, and form larger and closer hearts than if planted in less compact soil. Supposing two rows of early or second early Potatoes are planted from 20 in. to 24 in. apart, there should be two rows of Potatoes between every two rows of the Broccoli, which will place the rows of Broccoli about 3½ ft. or 4 ft. apart, and this distance is not too much, as it gives both crops plenty of room to develop themselves. The Potato haulm should be turned from the Broccoli to the unoccupied space between each two rows of Potatoes. It is now a very common practice to plant many of the Brassica tribe with a crowbar; the holes are filled in with fine soil, and the ground afterwards thoroughly soaked with water.

Sowing and Planting.

Though June is the month in which most cultivators try to get their plantations of Broccoli finished, yet it is frequently July before the work is done. Plants put in in August will make good heads, but the sooner the planting is done after the middle of June the better, though planting early ensures the finest plants and largest heads. The time of sowing or planting does not materially affect the plants as regards the time they come in use. The usual time for sowing Broccoli varies from February till April according to different localities; as a rule from the end of March to the middle of April is the best time if the weather be genial. The best manner of sowing is in shallow drills about 6 in. apart, and if the seed can be depended upon as being good, it should be sown thinly. The whole sowing may be made at the same time, for convenience sake; and, by planting a good many varieties a regular supply throughout winter and spring may be ensured when the winters are reasonably mild—for it is certain that no practice as to time of sowing or planting will ensure the heads forming at a certain time, if during winter we have protracted periods of frost or cold, during which all growth is at a standstill. Plants from sowings made early in April as recommended will under favourable circumstances be large enough for pricking out by the middle of May; they should have a moderately rich open border assigned to them where they can have the benefit of the sun to keep them strong and sturdy. Young plants should be pricked out 7 in. or 8 in. apart, and by the beginning of June the ground should be prepared and finally planted out, choosing a showery time if possible, otherwise recourse must be had to the watering pot. Many people never transplant their Brassicas previous to their final planting, but where time can be spared it is much the best practice, as the plants grow larger and stronger, and are better able to resist the attacks of slugs, snails, &c., than small plants put out direct from the seed-bed.

Though it is by no means an unusual thing to see little heads of Broccoli in cottagers' gardens where the soil is seldom turned over more than a spade's depth, and not over liberally manured, yet the plant likes a deep and rich soil. If practicable, the ground should be trenched two or three spades deep, or at least double-digged. When there is not time for doing either of these, the ground must be dug over a spade deep only, taking care to break the soil up thoroughly, as deeply as a good spade will do it, and working in some well-decayed manure at the same time. Planting should be proceeded with as soon as the digging is finished. If the planting be done in June or July, from 2½ ft. to 3 ft. must be allowed between the plants; if deferred till August they need not be allowed so much room. If the weather be dry, the seed-bed, or that from which the plants are taken, should be watered well the night before to soften the soil. The holes to receive the plants should always be made sufficiently large to admit of them being easily put in without breaking their roots. "Buttoned" and stunted plants are in many cases caused by bad planting. They are put in with broken and mutilated roots; and those that have a tap-root often have it bent double in getting it into the hole, and, instead of the point being at the bottom of the hole, it will be sticking up above the surface. No one should wait for wet weather to commence Broccoli planting, it is better to get it done at once, watering copiously once or twice, after which they will thrive till rain comes. When the plants are fairly established, and have grown a little, they must be earthed up with a hoe, more to prevent the wind from twisting them about than anything else.

Soil and Manure.

Broccoli thrives best in a deep loamy soil, well drained, but it is not very particular in this respect, and will produce fine heads in any well-enriched soil of which the staple is loam. In old garden soils in which humus has accumulated, it is often attacked with the grub or maggot, which causes "clubbing." In such cases lime may be applied with great advantage, or burnt clay and fresh loam, if it can be afforded. The ground should be trenched two or three spades deep previous to planting, and the manure, if rotted, well incorporated with the soil, or if rank, buried in the bottom of the trench. If trenching cannot be done, then Broccoli should follow some other crop, such as Potatoes or Onions, or any crop not belonging to the Cruciferae or tap-rooted section, such as Carrots, Turnips, or Beet, and the ground should be dug as deeply as a good spade will go, and well manured. Where the soil in which Broccoli is to be planted is naturally of a light character, if moderately rich, it should not be dug, but made as firm as possible round the plants. The best kind of manure for Broccoli is undoubtedly well-rotted stable manure, with a sprinkling of soot added to destroy worms. Watering is seldom necessary after the plants have become well established.

Heeling-in Broccoli.

As regards the heeling-in or laying of Broccoli, there has been much dispute; many growers think it a great advantage, whilst others think it at least unnecessary. That it has merits and demerits, there can be no doubt; but, as a rule, private growers are in favour of the practice of laying, their object being—firstly, to check growth, as they believe that disturbing a considerable portion of the roots has the effect of hardening and solidifying the whole plant, and of enabling it better to withstand severe weather; secondly, to place the plants in such a position that the sun, during alternate frost and thaw, will not get to the hearts, as these suffer more from frost in the night after being thawed by the sun in the day than when continuously frozen. For this reason the heads are laid so as to face the north or west. To accomplish this, if the rows run east and west, they commence on the north side of the first row, and take out a spit of soil just the width of the spade, so as to form a trench within 2 in. or 3 in. of the stems of the plants, laying the soil, as the work proceeds, on the side away from the row. This necessarily removes the soil from the roots, no more of which is to be broken off than can be avoided. All the plants in the row are then regularly bent over until their heads rest on the ridge of soil taken out

of the trench. When this is done, commence with the next row, taking the soil out so as to form a similar trench, and laying it in a ridge upon the stems of the row of plants bent over, so as to cover them right up to their bottom leaves; and, in this way, proceed until the whole is completed. If the rows stand north and south, the work is begun on the west side. By this process, as will be seen, all the roots on one side of each row, and a portion of those on the other, are considerably disturbed. This causes the leaves to flag a good deal for a week or two, which has the desired effect of checking growth. The more vigorous and large the plants, the greater the supposed necessity for thus preparing them for winter. In light soils, where they can be got up without much mutilation of the roots, should it be desirable to get the ground ready for some other crop before the Broccoli is off in spring, they may be taken up altogether and laid in some more convenient place, lifting them, as far as possible, with all their roots intact. Where time can be spared, I believe this to be a good system, as I have frequently noticed that where Broccoli is properly managed in this way, it is only during exceptionally severe winters that it gets destroyed, and the drier the land is the more frost the plants will bear without injury. The length of time during which this vegetable affords a succession, at a period of the year when there does not exist much variety, makes it worth while to do all that is possible to preserve it. Fortunately, however, severe injury to the Broccoli crop is the exception rather than the rule, and is quite as likely to be the consequence of imperfectly-ripened stems as of hard weather. The immense breadth of Broccoli grown for the London markets renders any process of heeling-in almost impossible. A few hundreds of plants might be so managed; but when hundreds of thousands are in question, the case is different. There are very large breadths of Broccoli grown in Kent, the consignments in some seasons averaging as much as 12,000 heads per day; in some cases it is probable that there were a quarter of a million plants in a piece, and one scarcely sees a failure anywhere. We sometimes see near the Shepperton station on the Thames Valley Railway, some splendid breadths of Broccoli as much as 18 or 20 acres in extent. Such large plots as these show that market growers cannot afford to "heel-in" their crops of this esculent; and yet they are in every way excellent, and failures seldom occur.

Varieties.

There have been many new varieties lately added to our list of Broccoli, many of which are of especial merit, but still it is not advisable to discard old and tried varieties to make place for those of less certain value. There are many varieties that are new in name only, and often when we think we are selecting a dozen kinds, we are in reality only selecting a few bearing several names. Then again some kinds will succeed better in some localities than in others, according as the soil or situation is suited to them. Amongst the many good kinds of Broccoli for succession the following may be mentioned as some of the best, Grange's Early White, Adams' Early White, Snow's Winter White (this is perhaps the best in cultivation), Early White Cape, and Osborn's Winter White: the foregoing are early and midsummer kinds. The best late kinds are Chappell's Cream, Dilcock's Bride, Wilcove's Late White, and Cattell's Eclipse, the latter being the best late variety in cultivation and will last out in the spring until Cauliflower is plentiful. The Sulphur, Purple Sprouting, and Late Purple are all hardy kinds and very useful, but as a rule their colour is objected to in private establishments. Among new varieties of Broccoli lately sent out the two following are highly recommended, as being great acquisitions to all growers of this valuable vegetable:—One variety was sent out by Messrs. Watts, of Northampton, under the name of Excelsior; and the other by Mr. Cooling, of Bath, under the name of Matchless. They are both midseason sorts, coming into use from the middle of March to middle of April. Both kinds are thoroughly protected by their leaves, and may be cut snow-white before the heads are exposed to the air; while their flavour, when cooked, is everything that can be desired in a Broccoli. When the heads come in too fast, as in other varieties the leaves can be tied over them to preserve their

colour; and, either for growing for market purposes or for private use, these two sorts are said to be the very best in their season. Another new variety, sold under the name of The Leamington Broccoli, has recently been certificated by the Royal Horticultural Society, and is said to possess good qualities. S.

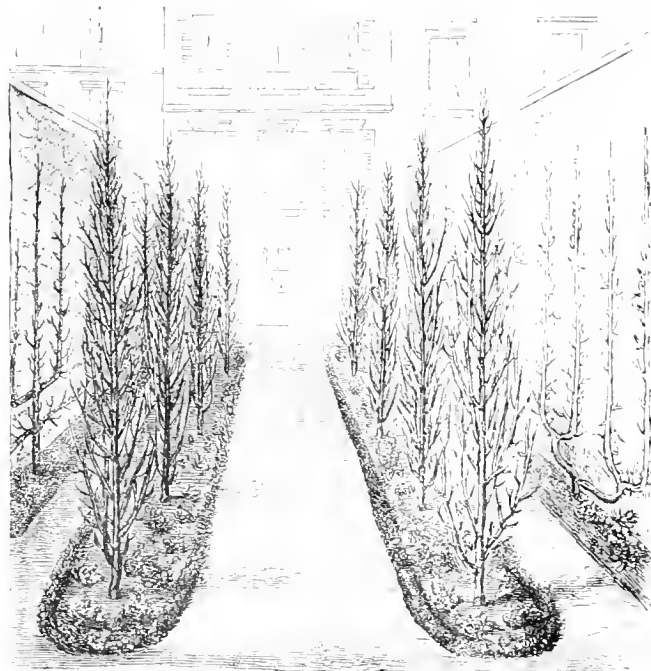
CHICORY AS A SALAD.

THE Chicory is a comparatively little known plant in this country, but it deserves extensive cultivation as a winter salad on account of its wholesomeness and easy culture. When Lettuces and other things are scarce, there is never any difficulty in having plenty of Chicory, and it is to a large extent a substitute for both Lettuce and Endive. The latter are apt to be lost during the winter from various causes; but the Chicory is a hardy root, and if sown in time the roots will be strong, and, like Seakale, may be taken up and forced when wanted. There are summer varieties of the Chicory, too, it should be mentioned, but they are wholly unknown in English gardens, and are only noticed in gardening works. In "Robinson's Parks, Promenades, and Gardens of Paris" they are more particularly referred to, and we are told that "the Chicorée Fine d'Été and C. Rouennaise are the best summer kinds; C. de Meaux is the large one, used in a cooked state, as we use Spinach; and C. de la Passion is a large variety, passing through the winter well without protection. The Scarolle, for winter or autumn salad, is a really noble kind of Endive, with smooth leaves, a vigorous constitution, fine flavour, and every good quality that such a plant should possess; and yet it is not at all sufficiently known or grown with us. The best kind is the Ronde or Verte, but the Blonde is also good. Of the wild Chicory there is an improved variety, Chicorée Améliorée, which forms little heads 4 in. or so in diameter in early spring, and is then very acceptable in a salad-loving country. By putting a cloche over stools of this variety, these little heads may be had all the winter. To blanch them slightly is an improvement; but this variety must on no account be employed to yield the Barbe, that popular Parisian winter salad. That is simply the common Chicory." It is of the culture of the last-named variety we intend to speak here, but we have given the above extract concerning the other kinds, as being the only particularised account of them we know of in any English work on gardening. When grown for blanching, common Chicory is usually sown from now till the end of June; if sown sooner, it goes to seed. The object of the cultivator should be to get good strong roots, capable of producing a good quantity of leaves when they come to be forced. The plant is not particular as to situation, but it should have a rather light and moderately rich and deep soil. Being a tap-rooter like the Carrot, it sends its Carrot-shaped roots straight down, and when it can do so freely, the plants are always much stronger. The ground should be deeply dug with a spade or fork, or trenched (if it has not been done in the winter time), and the seed sown at the same time in drills not less than 15 in. apart; and when they can be handled well, the seedlings should be thinned out to 1 ft. asunder in the rows. After this, the only attention they will require will be hoeing between the rows and watering in dry weather till November or December, when the plants will have shed their leaves, and be ready to take up for forcing. The forcing of the roots is comparatively an easy matter, which entails little or no preparation. When the leaves have decayed, a number of roots should be taken up and laid in soil, in some cold shed or other structure where they will not be frozen, and from this store they can be removed in batches for forcing as wanted. This is merely a precaution, be it understood, in case of severe frost or snow setting in and preventing them being lifted from the bed, where the main lot should be allowed to remain. The quantity of roots to be forced at a time will depend upon the demand for the salad. Fifty plants are sufficient at a time for a considerable establishment, and a batch may be put into heat about every three weeks; but for a small family as many roots as can be put in a 12-in. pot will be sufficient. Whether the roots are forced in a bed, or in pots or boxes, they should be buried up to within an inch of their crowns in light soil of any kind, watered, and placed in a temperature of from 50° to 60°, and be kept in the dark. If a dark shed or cellar be not available, the crowns may be covered with an inverted flower pot or box, which will do quite as well; in this way Chicory is sometimes forced in a kitchen. The leaves soon push, and they should be cut when they are young and tender, and always just before they are required for salad, for which purpose they are prepared like Lettuce or Endive. The roots will push a second and even a third time after being cut, but the growth is weaker every time, and the better plan will be to introduce a succession of fresh roots before the previous supply becomes exhausted. C.

THE FRUIT GARDEN.

A "FRONT" GARDEN OF FRUIT TREES.

The accompanying illustration shows a type of fruit garden common enough in and near Paris, and which well deserves the attention of all interested in the improvement of small properties. A mere spot of ground is planted with carefully selected and choice fruit trees well trained, and the result is, even from an ornamental point of view, better than it often is where subjects are planted that have beauty only to recommend them. Our view is from a sketch taken in winter by M. François Courtin, of a small garden facing the street leading from Vincennes to Montreuil. Beneath the trees Pansies, Pinks, and other hardy flowers grow: the presence of the trees does not prevent the little garden being made gay with flowers. In winter, the graceful pyramidal Pear trees and well and simply-formed Peach and Plum trees against the walls certainly look better than the contents often presented by little gardens arranged with another aim. In spring there is the beauty of fruit-tree blossoms, and in autumn the crown of trees—beautiful and good fruit. The art of the engraver, even in its best form, can give but a suggestion of such a garden, but probably this will show how desirable it is to make, more than ever, full use of our opportunities of planting fruit trees in small gardens. The market distribution of the good things produced by our fruit growers is so very imperfect that it behoves the owner of even the smallest garden to secure as far as possible his own supply. We may even say that much of the monotonous entanglement now known as shrubbery might well be exchanged in small gardens for well-grown and well-chosen fruit trees.



A Front Garden of Fruit Trees.

Covering Early Vine Borders.

As Mr. Baines does not seem disposed to discuss the real question involved in this matter, and upon which the practice he recommends really hinges, I have little more to add. All that I contend for is that in Vine culture, the root and top temperatures should bear a reasonable proportion to each other, and what that proportion should be I have already stated; and were I to advise generally, I should prefer laying down some such rule to recommending a particular practice that was most assuredly not applicable in all cases, and which in some cases might lead to disastrous results. I further believe that I am supported in my views by most authorities on Vine growing, while logically I do not see that they can be disputed. Mr. Baines' own practice in everything, I think, but Vines, is also in my favour, and it seems he would with some subjects go in the contrary direction even much farther than I should. At p. 275 of THE GARDEN for April, Mr. Baines tacitly recommends a bottom-heat for Cucumbers of 85° or 90°, which is perhaps as far above the mean temperature necessary for these plants, as a Vine-border, treated as he recommends, would be below the mean temperature of the Vinery—all of which is very inconsistent teaching. Such a temperature is, however, neither necessary nor desirable for the Cucumber, even in the warmest season, let alone in the month of April, when the maximum heat can seldom be got up to the above figure. Cucumbers can be grown successfully all the year round, and sometimes without changing the plants, in a bottom-heat of from 70° to 75°, figures which are much better not exceeded during the cold season at least. Cucumbers pushed on by the mere force of a high bottom-heat, irrespective of the amount of light and the top temperature, are never either healthy or long-lived.—J. SIMSON.

Planting Orchards.—Too often when a new Orchard is planted to take the place of a worn-out one, rough holes are made where the old trees were taken out, and the plants are put in just as one would a post to hold a gate. In other cases, when old trees begin to fail, they are cut over and grafted with other kinds; but the roots dying (which is the real cause of failure) leaves these grafted branches a thicket of dead and cankered sticks. Though cattle and sheep are often put to graze under the shade of Orchard trees, with the view of producing something more than the Orchard supplies, the returns are small compared with what they would be were the pasture having its wants properly looked to, or the trees cultivated with a minimum of skill. It is not correct to suppose that because certain counties have a name for fine fruits that much skill is displayed in the management of the trees. In most cases they are left to themselves, and become so crowded that crops are had merely from the outer margins. This wasteful and negligent system is not only confined to the eastern and southern counties, which have long had a reputation for fine fruit—Kent especially—but in Somerset, Wilts, Worcester, and other counties, large tracts of valuable land will be found covered with neglected Orchards, wasting space which ought to supply either abundance of fruit or valuable farm-produce. But both being attempted on the same land, and neither the one nor

the other giving satisfaction, it is clear that immense waste is the result. Improvements are, however, taking place in fruit tree management in some districts, not only by better sorts superseding worthless kinds, but by a proper system of planting and thinning being carefully followed out. In Worcestershire especially cultivators plant thickly at first; and as the trees require more room, those which can best be spared are lifted and either sold or transplanted into fresh Orchards; kinds, too, are grown which fruit freely, and which are known to succeed in the district.—M. T.

Calville Blanche Apple.

—This Apple grown as cordons on the French Donein stock, bears abundantly on the bottom of a south wall where a little protection can be given to the blossoms in frosty springs; but to see it in all its beauty and size, it is best grown in pots in an Orchard-house. When well grown and ripened, it is one of the best varieties which we possess; and in February, March, and April no other Apple proves so grateful, espe-

cially to invalids. When well grown, it is too valuable for baking purposes, but in some seasons here, where the fruit has been grown on espaliers, and not ripened well, it has been used in the kitchen, and found to be the most delicious of all sauce Apples. There is another Apple which, when grown in pots, possesses the greatest beauty, namely, Cox's Pomona. A little tree of this placed on the dinner-table, with a dozen or two of its highly-coloured fruit, is a worthy companion to the yellow-fruited Calville. When the Pomona is on the Paradise stock, and grown in pots either in the orchard or in the open air, with plenty of air and sun-heat, it never fails to acquire that brilliant red colour which is so attractive in Apples.—W. TILFERY, *Wellbeck*.

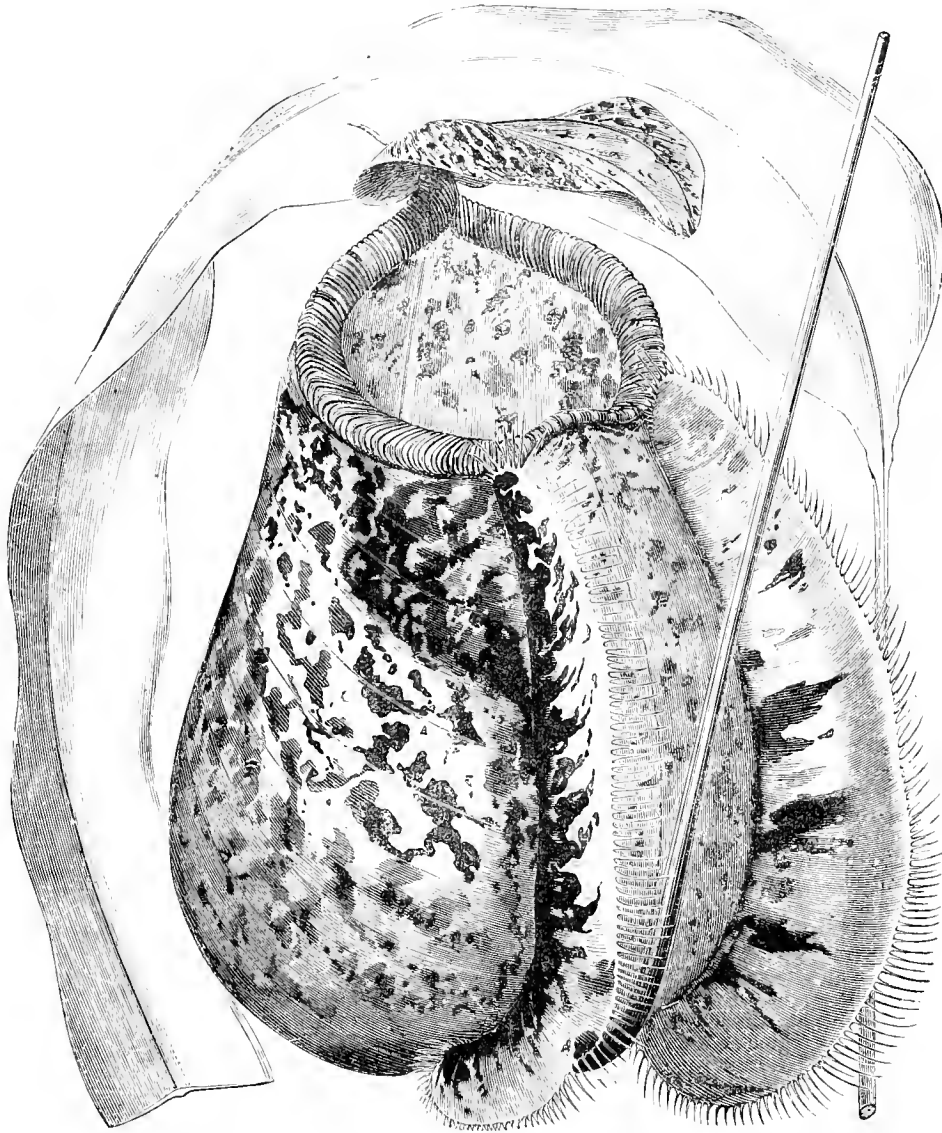
NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Peach Culture at Niagara.—A correspondent of the "Country Gentleman" has been giving some interesting information about Peach culture along the Niagara River, and thus speaks of the Peach:—"Most of the Peach orchards in this region are in full vigour. They bore good crops for the past five years in succession. This year, from some unknown cause, there are very few. It is estimated that the Peach orchards of the township of Niagara contain 40,000 trees, and it is likely to become noted as one of the best Peach regions of the State. The best Peach region appears to be confined to a breadth of a mile or two along the river. Farther inland this crop has not been so successful, until we reach the neighbourhood of Lockport.

THE NEPENTHES OR PITCHER-PLANTS.

THE *Nepenthes* rank amongst the most singular and interesting subjects belonging to the vegetable kingdom; indeed, they are singular enough to form the sole genus of the Order of *Nepenthaceæ*. They never fail to attract the attention and excite the curiosity of the most careless beholder. There are about twenty species known to botanists, and they are chiefly natives of Sumatra, Borneo, and the adjacent islands of the Indian Archipelago. One is found in Ceylon, two in Mada-

plants are found more difficult to cultivate successfully than they are, and which at the same time do not impart nearly so much interest to a selection of plants. I would, therefore, strongly urge all who possess a house for stove plants to include at least half-a-dozen of the most striking Pitcher-plants, and I will vouch for it that, with nothing more than ordinary attention, they will prove to be of great interest. They, more than most plants, give character to any collection, however extensive or however select.



Nepenthes Chelsoni (a hybrid raised by Messrs. Veitch between *N. Dominii* and *N. Hookeriana*).

gascar, and a few in Continental Asia. A good many hybrid *Nepenthes* have been raised in this country, chiefly, if not exclusively, in the nursery establishment of Messrs. Veitch & Son, under the manipulation of their celebrated hybridist, Mr. Dominy. It is a common and erroneous idea that the *Nepenthes* are very difficult plants to propagate and cultivate. This is much to be regretted, for it has very greatly prevented their more general cultivation. I know of no reason why a few *Nepenthes* should not form conspicuous objects wherever there is an ordinary plant stove, in which generally many

Various methods have been recommended for the successful propagation of *Nepenthes*. Some of these methods are tedious, and others are complicated, and, as a rule, uncertain in proportion as they are complicated. Some recommend and practise the layering of young shoots in spar, fine gravel, or coarse sand. Others strike them from cuttings by preparing a bed of chopped Sphagnum, on which small empty inverted flower pots are set, and the cuttings are put down through the hole in the bottom of the pot, allowing their base to rest on the Sphagnum. The simplest, quickest, and most certain way

with which I am acquainted is to put fresh sawdust to the depth of 6 in. in the warmest part of the propagating pit where there is a bottom-heat of from 95° to 100°; and after making the sawdust moderately firm, to insert the cuttings, and cover them with a glass case or large bell-glasses. The secret—if secret it can be called—of success, is to keep the sawdust constantly warm, wet, and close. In this way I strike nearly all sorts of *Nepenthes* cuttings, with not 5 per cent. of failures, and find that they are ready to pot up well-rooted in about six weeks after they are inserted. The striking of *Nepenthes* in this way may be regarded as one of the most simple and certain of all gardening operations. In selecting the cuttings preference should be given to those which are moderately firm, somewhat slender, and short-jointed. These make the best foundation for compact, bushy plants. I have, however, made up long growth of such as *N. Rafflesiana*, *distillatoria*, and others, into cuttings, with one or two joints and a leaf or two, and find them root quite freely. The very hard and the very soft young growths are those which are most likely to fail when made into cuttings. It is easily known when the cuttings have formed sufficient roots to be ready for potting. They begin to grow freely when they have roots about three-quarters of an inch long; those that have been made by cutting up long shoots push young growths from the axils of the leaves, and when the roots are of the above length, is the proper time to pot them—for if left till they extend, they are so brittle that they cannot be handled without breaking them. In getting them out of the sawdust, place the fingers of the right hand under them, holding the cuttings in the left, and raise them gently out of the bed. Then give the stems a gentle tap with the finger, to knock all the sawdust out of the bunch of fine hairy roots; for if sawdust be left about them to any extent, it breeds fungus in the pots or baskets into which they are put.

The young plants may be put either into pots or small baskets made of wire or Teak. What I prefer is, to establish them first in small pots, and then transfer them to baskets; for Pitcher-plants show themselves best when suspended. For a large cutting 3-in. pots are of sufficient size. Thorough drainage is of the first importance; for though this genus of plants requires a great supply of water, it must never stagnate about their roots. The pots should therefore be a third full of charcoal, broken to the size of Broad Beans, and with the dust sifted out. The potting material which I prefer is fresh living Sphagnum Moss, and the fibre of the best Orchid peat, with all earthy particles sifted out of it—two parts of the former and one of the latter, well mixed together; and in the process or operation of potting a good few pieces of charcoal are mixed with it. A firm seat of this material is made for the base of the cutting and its whorl of roots to rest on. The pot is then carefully but firmly filled up, and slightly rounded off above the rim of the pot, as in potting Orchids. A stake is put to each plant, to which it is fixed, and they are then ready to be returned to the glass case or hand-glass again. Plunge them to near the rim of the pot, give them a thorough soaking of water, and keep them close and moist for a fortnight or three weeks; after which raise them out of the bottom-heat, and inure them by degrees to the air of the house or pit. They soon commence to grow freely, and can then be placed in any shady part of a moist stove not far from the glass. If bushy, dwarf basket-plants be the object, pinch the tops out of the plants, to cause them to break into several growths; but if rafter-plants be desired—especially in the case of *N. distillatoria*, *N. ampullacea*, and *N. Rafflesiana*—do not pinch them. Cuttings struck in early spring and managed thus are well established in their small pots, and ready for transfer into larger pots or baskets, as the case may be, about the middle or end of July. The material used for potting is the same as has already been described, with fully more charcoal mixed with it; and a few pieces of dry horse-droppings are added in the process of potting, and put chiefly near the surface of the pots or baskets. When shifted they can be suspended within 2 ft. or 3 ft. of the glass, in positions where they can be freely syringed every afternoon. Shade from the direct rays of the sun is necessary, and they require to have the material about their roots always moist. They thrive well hung up anywhere in a stove which is kept sufficiently moist and shady for stove-

plants that are grown for the beauty of their foliage, and they do not need half the care and attention that *Crotons*, &c., require. Early spring cuttings, treated as described, will furnish a good display of moderate-sized Pitchers the same autumn—and this is not much longer than the mere rooting of the cuttings takes under some of the old methods.

To grow *Nepenthes* into specimens varying in size according as the extent of accommodation at command may lead the cultivator to decide, it will be necessary to examine the young plants treated of above about the end of February or early in March; and if the pots or baskets be found well filled with roots, and the material in which they are growing adhering to them, they should be shifted into pots or baskets of larger sizes, always remembering that *Nepenthes* do not need a great amount of root-room—the chief points in their after-culture being to provide them with fresh living Sphagnum, and just the fibre of the most fibrous peat. They dislike, above all things, inert fine soil. The drainage should be perfect, and some pieces of charcoal should be mixed with the Sphagnum and peat. Any long, straggling growths which may have been produced should be shortened back soon after they are shifted; and the pieces cut off may be put in as cuttings. Provided *Nepenthes* be grown in material that suits them, they may be termed very easily-grown plants, their chief requirements being a liberal supply of water and daily syringing overhead. Some varieties, such as *N. distillatoria*, *N. ampullacea*, and other strong growers, are very suitable for training up the rafters of a plant-stove. To beginners who want to grow only a select few, I would recommend the following:—*Nepenthes Rafflesiana*, *N. Hookeri*, *N. distillatoria*, *N. hybrida maculata*, *N. Sedeni*, *N. Dominiana*, *N. intermedia*, and *N. lanata*.—"The Gardener."

Lælia pumila Dayana.—This welcome addition to dwarf winter-blooming Lælias was imported by Messrs. Low & Co., of Clapton, with whom (as well as with Mr. Day, of Tottenham) it has recently flowered. A remarkably vigorous plant of it was shown by Sir Trevor Lawrence, of Burford Lodge, Dorking, at a recent meeting of the Royal Horticultural Society, and received a first-class certificate. In habit and time of flowering it agrees with *Lælia pumila*, but the colours are much more effective, and the flowers are more shapely, and of a more wax-like texture. This plant and its ally *L. pumila* (*Cattleya pumila* or *C. marginata* of gardens), were imported together from the same habitat, and it is said that forms of it are almost wholly of a dark maroon-purple tint, the white-throated sub-variety being, however, the most beautiful.—B.

Propagating Santolinas.—A few old plants of these should be taken up in the autumn, cut close down, and potted; they should then be stored away in a cold pit or frame during winter, and in spring removed to the propagating pit. As soon as the young growths have attained 1 in. in length, they should be cut off with a sharp knife, and have the bottom leaves trimmed off; the cuttings should then be inserted in pots or pans, prepared as for *Verbenas*. The soil should be kept moderately moist, and as soon as the cuttings are rooted they should be removed to a cooler place and gradually hardened off. *Santolinas* will also strike root if taken off in the autumn and inserted in sharp sandy soil firmly trodden down; they should be put in firmly, and a hand-light placed over them. When struck abundance of air should be given them, but during sharp weather the lights should be put over them.—S.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Echinocactus Cumingii.—I have now in flower a seedling of this species, saved from a plant in my possession, and which bears bloom of a pale primrose colour which turns almost white before fading. The flowers are perhaps hardly so large as those of the type. Out of the batch which I raised from one berry, I only retained two examples for my own collection, and the other, which is of slower growth, appears to promise flowers of the original colour, which Labouret calls yellow ochre. Cacti, like all other plants, of course vary occasionally from seed, but this is the first time I have seen this species of a different colour.—JOHN E. DANIEL, *The Terrace, Epsom.*

A Violet-scented Fern (*Aspidium fragrans*).—This is a low-growing little Fern, having short, finely-cut fronds which exhale a most delicate fragrance not unlike that of Violets. The plant forms radiating tufts of fresh green leaves, and it grows well in a close moist Wardian case or under a Fern shade, it deserves to become popular as a distinct and pleasing decorative plant. We have several other Ferns all more or less odorous, but none more desirable than this. It succeeds best in a fresh compost of turfy loam, peat, and sandstone grit, to which some living Sphagnum Moss may be added.—B.

TRAPS FOR INJURIOUS INSECTS.

WASPS, HORNETS, FLIES, &c.

THE numbers and fecundity of the Wasp in certain seasons are as well known as the mischief that they do to our fruit, and the annoyance that is caused by the dread of their sting. It is entirely our own fault, however that they trouble us in such numbers. If all the cultivators who have an interest in ridding themselves of the Wasp would give themselves the trouble, and come to some arrangement for united action, in a very short time the species would disappear. It appears, indeed that at

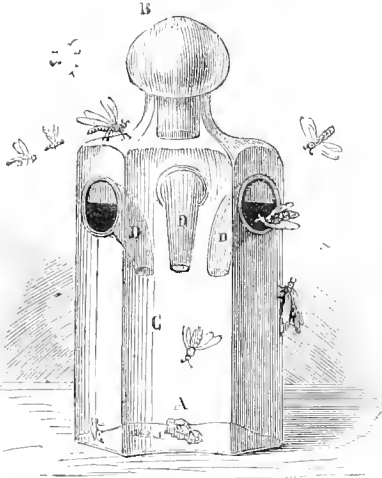


Fig. 1.

Thomery, near Fontainebleau, where every one destroys it because it attacks the Chasselas Grape whose cultivation is the trade of the country, the Wasp is now nearly unknown. Among the means employed for their destruction are some very simple traps. These are the bottles of which we give figures 1 and 2, in which is placed water sweetened with honey or sugar. The bottle (fig. 1) is hung easily along espaliers, and there destroys a great number of the insects which the ripe fruits (Pears, Peaches, Grapes) attract.

As to the apparatus represented by the fig. 2, it can also

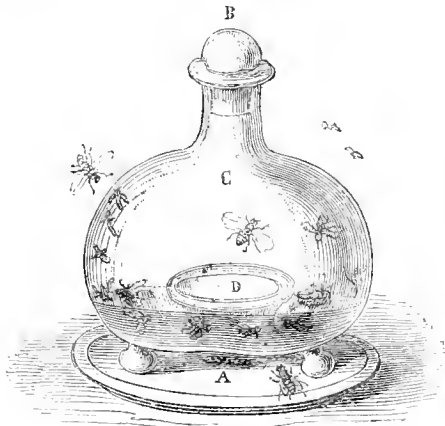


Fig. 2.

be employed against Wasps, but is rather intended to destroy house flies, the scourge of country houses. A is a plate upon which rests the carafe C, and which is raised underneath and pierced by a large opening. The Flies enter there, but do not take the same course to get out, because they always try to rise: they fall into the soapy water with which the foot of the bottle is filled.

There is another still more energetic, but more dangerous means which is sometimes adopted in France, but which we do not recommend—flat dishes, such as plates, are hung by

three strings, in front of the espaliers. In these dishes is placed a mixture of syrup and arsenic: the syrup may be replaced by honey or any other analogous substance. All the Wasps soon fall dead on the ground. Unfortunately the Bees fall there at the same time, attracted by the same bait.

There was in the exhibition of 1867 a sufficiently original machine for catching Wasps and Hornets in their nests: it was a double cone, about 3 ft. in size, made of perforated metal, placed by means of a handle either on the ground upon the orifice of the nest of the common Wasp, or upon trees or walls over their nests for Hornets. The apparatus is placed at night when all the insects have gone home, and the base is surrounded by earth heaped up to prevent any amongst them from escaping. The Wasps ascend into the cone in the morning through a passage that is opened for them, and when safely entrapped they can be suffocated by brimstone or similar means.

A. M.

IN PALESTINE.

THE better acquainted I become with the country east of the Jordan, the more I am amazed at its fertility and natural resources. The scenery everywhere among the Gilead hills is picturesque and beautiful. The forests and cultivated fields, the green valleys and grassy slopes, remind one of the park scenery of England. The hills in many parts are well wooded, but besides this there are also dense forests of large fine old trees, such as are not elsewhere seen in this peeled and poverty-stricken land. The upper portion of Wady Yabis is called "el Akhdar," i.e. the green, and its gardens and orchards, as well as its fields of Grass, combine to render it a charming place. But Wady Ajlun surpasses the Yabis in respect to cultivation and beauty, because it is larger, and the fountains which feed its copious stream are at a much higher level in the mountains. Ain Jemeh is near the head of this Wady, and the fountains and streams flowing among the Olive trees and Walnut groves there make this one of the most delightful valleys in Syria. There are three other flourishing villages, Ajlun, Anjara, and Keferenji, all except the latter in the immediate neighbourhood of Ain Jemeh; and the valley at that point is full of ancient ruins, which extend clear up to Kallet er Rabad itself, showing that this locality has been occupied by towns or cities from remote times. At one place on this Wady I saw an orchard of unusual extent, in which there were at least eight kinds of fruit trees—the Fig, Olive, Apricot, Quince, Plum, Lemon, Apple, and the Pomegranate growing side by side. The valley is full of mills, flour-mills, of which I counted about twenty, but not all of them were in working order; and not only on this, but on many other streams as well, the number of ruined mills surprises one. For instance, on the line of the Zerka, or Jabbok, I counted between twenty and thirty ruined flour-mills, besides a very few that were in operation. I learn that in some cases the locality chosen for a site is not a good one, and the investment proves a failure; and in the more dangerous sections, as has doubtless been the case on the Zerka, the people have been either driven away or murdered, consequently the place and the business have been abandoned.—"Athenæum."

Sir Wyville Thomson on Patagonian Vegetation—Recently at a meeting of the Botanical Society of Edinburgh, Sir Wyville Thomson gave an address on "The Character of the Vegetation of Fuegia and Southern Patagonia." He stated that he had passed through the Straits of Magellan in the Challenger, and had taken the opportunity of landing on some of the islands at the west end of the channel. He had collected a considerable number of plants, which he had brought home with him, and which he presented to the Botanical Society. The vegetation of Fuegia, he remarked, was most curious. Its chief characteristic was the immense jungle of scrub and brush. The trees were not very large nor very close to one another, and so there was no appearance of a forest. Beeches were most commonly to be met with, and they were not very long-limbed, owing to the vast debris of old vegetation. When he (Sir Wyville) visited the district it was Christmas time, and consequently the depth of summer, and the plants were in full bloom. Among the creeping plants he noticed large bunches of the Mistletoe growing up the trunks of the trees. The ends of the Straits, he mentioned, were remarkably distinct in the character of their vegetation. The islands at the west end were exceedingly rich in plants, consisting mainly of a jungle of brush; while in the east the land was very low and covered with Grasses and low herbage, the trees being not nearly so tall. The general features of the vegetation of Fuegia were extremely like those of the southern parts of Norway and Sweden. The temperature only changed by a few degrees, and vegetables from our own country would not seed, owing to the few degrees of summer-heat. The lecture was illustrated by dried specimens of the plants described.

FLOWER VASES AND STANDS.

THE Royal Horticultural Society did useful work when some years ago it offered prizes for the best arrangements of flowers and fruits for the decoration of the drawing-room and dining-table; but the original and beautiful examples exhibited by Mr. March and others soon came to be lost sight of, and originality stifled, by the prizes for dinner-table arrangements being invariably given to the now stereotyped suite, consisting of either a central Palm of the Cocos Weddelliana type, flanked by two March stands filled with precisely the same mutilated flowers and Ferns, or to three March stands, the taller one being in the centre. The floral vases for the drawing-room table have been nearly universally neglected, although it is here, perhaps, that we find most scope for the really artistic—that is to say, the beautiful—arrangement of flowers, more especially hardy ones; although both hardy natives and tender exotics may often be combined in drawing-room vases with the best results, there is a great difference between the tastefully-filled vase found on the drawing-room or hall table in most old country houses and modern dinner-table vases; it is not, however, too late to mend, and what we now plead for is a more natural style of grouping in the last-named class of decoration. No good flower painter will ever hand down to posterity pictorial copies of our modern bouquets and groups of dinner-table flowers as Van Huysum has done in the case of floral vases of his time. The flower pictures of that and other artists may therefore serve to teach us how beautiful our drawing-room vases may, under tasteful management, be made. Our modern floral decorations, of which that now engraved is an example, however neat and graceful in form, never give us glimpses of floral luxuriance and tints of pure colour as do the old-fashioned masses of Lilies, Irises, Narcissis, and Tulips arranged with their own, and consequently most appropriate, leafage. Mr. Aldous did, however, recently exhibit a most original and graceful vase for the drawing-room table at South Kensington; it consisted of Solomon's Seal and one or two spathes of the white Arum Lily springing from a naturally-arranged base of filmy Maiden-hair Fern and coloured flowers; but both the judges and the press alike left it unnoticed. Modern floral arrangements for the dinner-table will certainly fall into disuse, owing to their formality and want of true artistic beauty. Not so vases skilfully filled with hardy flowers; such vases every true flower painter is pleased to imitate, and every lover of flowers to enjoy and admire.

F. W. B.

Artificial Flowers, called Barometers.—These are now being exhibited in a number of Parisian opticians' shops. They are coloured with a material composed of chloride of cobalt. When exposed to sun and dry air the leaves become deep blue; when the air is saturated with moisture, they become pinky. All the intermediate shades are easily observed.

Leaves.—The chemists of the German arboricultural and agricultural schools have made a thorough investigation into the properties and composition of forest tree leaves. They have found the chemical analysis of the leaves of several species of forest trees to be much richer in phosphates and other fertilizing ingredients, than they generally get credit for in this country, so much so that we would call the attention of all interested to their value as excellent litter when collected and kept dry till used, and very valuable manure they make, according to analysis given by the German chemists.—"Journal of Forestry."

PLATE LXXVII.

THE ARMENIAN GERANIUM.

Drawn by H. HYDE.

It is odd that, notwithstanding the number of years hardy Geraniums have been grown in our gardens, we should have now to figure the handsomest and most valuable of them all—*G. armenum*. Our plate, drawn by Mr. Hyde from a plant in Parker's nursery, gives a better idea of the plant than any verbal description could possibly do; however, it is difficult to render the true colour. It is a very robust perennial, sometimes 3 ft. in height, and is as hardy as a Dandelion. It flowers abundantly in midsummer, and sometimes in smaller quantities till late on in the autumn. One of its merits is, indeed, the startling abundance of its large and handsome flowers: as to culture it only requires planting in any ordinary garden soil; as to position, it will suit well for the mixed border, also for grouping with the finer perennials in beds and on the margins of shrubberies. Like other good plants, this came to us without any flourish of trumpets, without even its name being announced at first. The writer noticed it in flower in M. Boissier's garden near Lausanne in the summer of 1868, and, seeing that it was both new and very handsome, brought home a few seeds of it, which were given to Messrs. Backhouse of York. Messrs. Backhouse distributed it at first under the name of one of the older hardy Geraniums (*G. Lambertianum*). Dr. Regel, who obtained it from that firm, found it distinct from that species, and, imagining it to be a new one, figured it in the "Gartenflora" under the name of *Geranium Backhouseanum*. Soon afterwards M. Boissier, on being referred to, pronounced it to be his *G. armenum*, first introduced through him to the Botanic Garden at Geneva, where it first flowered in Europe. The plant is now easily obtainable in most nurseries where hardy plants are grown. It should find a place in every collection of hardy flowers. W. R.



Vase of Flowers.

Annual Candytufts.—Candytufts have long ranked amongst the most popular of hardy annuals, for they are very hardy, robust in growth, and remarkably free-blooming plants. From the Purple Candytuft and what is

known as the White Rocket, by dint of careful selection, several improved kinds have been obtained. The purple variety has been sub-divided into lilac, purple, and rose, all of which, when true to character, are very pretty, but they have a tendency to revert to the original type. The finest selection is the crimson, of which I have seen fine masses at Dedham. The new carmine variety, now in course of distribution, is said to be very fine in colour, but I have not seen it. The white Candytufts are also very effective, especially the best form of the Rocket Candytuft; a few years ago some dwarf kinds were introduced from the Continent, but the flowers were small and ineffective, and inferior to those of the English forms. Candytufts may be sown in autumn in light, warm, rich soil, and sufficiently thinned out early in spring, or they may be sown in spring as early as possible. They must have good soil if they are to be effective, and they must be thinned out at the proper time and attended to a little as they make growth. They are scarcely early enough to flower in ordinary spring gardens, but in the open border where they can be sown in large patches they form bright spots in May and June.—D.



TREES AND SHRUBS.

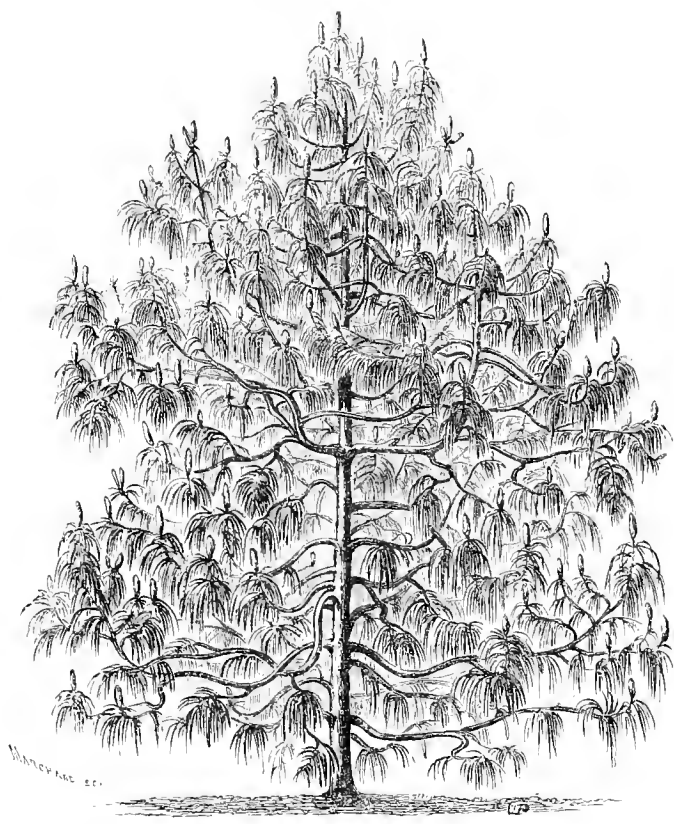
SABINE'S PINE.

(PINUS SABINIANA).

This beautiful glaucous, grey-coloured, long-leaved Pine was introduced into Britain from Upper California in 1832 by Douglas, then botanical collector to the London Horticultural Society, and was named in honour of Mr. Sabine, then secretary of that Society. Douglas describes the trees in their natural habitats as being "of tapering form, straight, and of regular growth, from 40 ft. to 120 ft. in height, 2 ft. to 12 ft. in circumference, and, when standing far apart or solitary, clothed with branches to the ground." Some few reach 140 ft. in height, but those are not of great circumference. The wood is white, soft, even-grained, and perhaps not very durable. The leaves are in threes, very rarely in fours, from 11 in. to 14 in. long, and drooping during winter. Since its introduction this tree has become extensively distributed throughout the country, but as a rule it has not succeeded well; indeed, it has been a most disappointing tree, except, perhaps, in a few favoured localities. At Holkar in Lancashire there is a fair specimen of it, and at Kew, too, it is succeeding tolerably well. Where it does thrive and grow vigorously and when it is clothed with its long, glaucous, drooping foliage, it is an object of singular beauty distinct both as regards feature and form. It is highly ornamental planted as a specimen tree in pleasure grounds or in the foreground amongst other Conifers of darker foliage in a Pinetum. It should be planted in sites quite sheltered from cutting and prevailing winds and where there is a good depth of rich vegetable or alluvial deposits; when planted in thin, poor soils and exposed to winds, it presents a ragged, miserable appearance, and its branches gradually become, as it gets old, almost divested of leaves; indeed, in such positions it has been known to perish outright. The idea, therefore, of *Pinus Sabiniana* ever becoming a useful timber tree in this country may be at once discarded. Its cones, it is said, are very remarkable, being about 12 in. long and rough and prickly on the outside; they grow in clusters round the branches, are recurved, press on the wood for support, and remain on the tree for several years. Statistics from any of your readers who may possess or know of good specimens of this tree would be interesting, stating age, height, present condition, soil, or geological formation, or any other particulars as to habit and suitability of climate.

Longleaf.

GEORGE BERRY.



Sabine's Pine (*Pinus Sabiniana*).

FORESTS AND OPEN SPACES.

THE bill introduced by Government for regulating the New Forest is, we understand, likely to meet with some opposition. The New Forest contains about 63,000 acres, a portion of which is barren moorland. A space of about 20,000 acres has been in past years reduced to a mere formal plantation of Oak and Fir, planted by successive Governments for the sake of timber. Over this area the Government is, under the present bill, to retain power of planting and replanting, but the remainder of the forest (with the exception of one private enclosure not dealt with under the bill) will be left open to the public, and that in its natural state, allowing of free growth and of various kinds of trees. The scheme prepared by the Commissioners for Epping Forest has only just been received. This scheme offers compensation, which some consider over-liberal, to the grantees—that is, those who have purchased pieces of land unlawfully enclosed by lords of manors in past years. Where such land has not been built upon or improved, it has been argued, against the grantees, that the amount the holders would expect would be the value of the land calculated on the basis of its agricultural rather

than its building value. Such, indeed, was the decision of the Master of the Rolls in the case of the grantee who was made a party to the suit to try the rights of grantees. But the Commissioners have recommended a higher rate of compensation. Very various opinions, however, are entertained as to the price which has been actually paid by the majority of the grantees. If it be the fact, as some affirm that, as a rule, this land has changed hands several times, and that the present holders have paid full value for it as building land, it is not unreasonable that they should be compensated on that scale, in spite of the land having been illegally enclosed. Others, however, say that, as a rule, 760 acres held by the grantees have only been purchased by them at agricultural price. Whichever basis of cultivation it is decided is the fair one to adopt with respect to the present owners, it appears quite just that the proposal should be adopted that the lords of the manors, who are under the scheme to receive one-tenth of the agricultural value of all unenclosed land in compensation for their rights, should have deducted from the sum to be so paid them whatever amount they have previously received for land unlawfully enclosed by them. The bill

for the Forest of Dean will not, it is understood, be proceeded with by the Government. All that is really needed can, there is no doubt, be done without any bill. The Crown has power to sell small pieces of land in the immediate neighbourhood of the villages for the purpose of building miners' cottages, which are much needed. Colonel Kingscote, on Friday night, denied that the Government did, in fact, exercise this power, but this omission, if real, it is hoped, will be remedied, and the rest of the forest be allowed to remain open. With regard to the smaller metropolitan open spaces, we are glad to notice that Mr. Whalley's bill has passed the House of Commons and is now before the House of Lords, under the charge of the Duke of Westminster. Its main object is to enable the Metropolitan Board of Works to accept and maintain open spaces handed over to them without a special Act in each case. This provision is very important just now, when many London parishes may be prepared to follow the example of St. George-in-the-East and St. Martin-in-the-Fields, and allow their disused churchyards to be planted and used as public gardens. For the one sake of the poor districts it seems more fair that the cost of such planting and maintenance should be borne by a Metropolitan than a local rate, though

A Highland Forest for the Queen.—It is stated that the arrangements are almost completed for the purchase by Her Majesty from Colonel Farquharson, Invercauld, of the forest of Ballochfine, which adjoins the estate of Balmoral. The forest is on the estate of Invercauld, and comprises within its grounds the largest area of naturally grown Scotch firs in Scotland. It is unequalled for the size, beauty, and symmetry of the trees. Ballochfine has been held by the Queen on lease for a number of years at an annual rent of £1500 sterling.

we admire the spirit with which the two vestries have come forward in the instances we have cited. All these Bills are being carefully watched by the Commons Preservation Society, which in past sessions has been instrumental in initiating proceedings which have resulted in preserving Hampstead Heath, Plumstead, Wimbledon, Wandsworth Commons, and many others, and which this session has successfully opposed railway encroachments threatened to Mitcham and Barnes.

"Whangee" Walking Canes.—Under the name of "Whangee," a jointed Bamboo is, according to the Linnean Society's Journal, imported in considerable quantities into this country, it is said from China, for the manufacture of walking-canes. For a long time the scientific name of the plant producing these canes was quite unknown; latterly, however, they have been attributed to the genus *Phyllostachys*, *P. nigra* being the species chiefly accredited with their production; on this point, however, there is still some doubt. From whatever species of Bamboo they may be produced, one thing seems clear, that the "Whangee" canes, as seen in trade, are not the stems proper, as is generally supposed, but the underground stems, the small circular markings surrounding each joint being the scars whence the roots have been given off, and the indentations on the alternate sides the points from which the aerial stems have arisen. The aboveground stems assume a different character, being, of course, minus the root-scars, which is a distinguished mark and a point of beauty in the commercial cane. Thus two distinct canes seem to be produced by the same plant, one from the underground, and the other from the aboveground stem. A specimen which I have from a plant grown at Chatsworth, seems to me sufficiently to illustrate this. One thing is remarkable, that all the imported "Whangee" canes are white, while the English-grown specimen is black. This I can account for only by supposing the former to be systematically bleached at the same time that they are straightened before exportation. The length required for a walking-stick is perhaps unusual for the rhizome of a Bamboo; but this may be attained by keeping the stem buried beneath the soil until it has grown to a sufficient length. That this may be done as a system is possible, when we know that in Algeria the young sticks of the Medlar are gashed transversely, while they are growing, to give them a knotted appearance, and so enhance their value in the market.

Ivy on Houses.—Horticultural journals have lately been discussing the question whether or not a covering of Ivy makes a house damp. Of course, the Ivy clambering up the gable of a house cannot make the house damp, any more than a topcoat can make a man's underclothing damp; on the contrary, it will tend to preserve it dry. If, however, the rain be sufficiently heavy to penetrate the covering of Ivy and to wet the wall, the fact of the Ivy keeping out wind and sun will, of course, tend to keep it wet, just as a topcoat would keep underclothing wet if the rain had drenched the wearer to the skin. Ivy is undoubtedly very bad in this respect in positions where the wet from any special cause is liable to drive in behind it. A faulty spout or an awkward bit of roof may sometimes be found to shoot the water down at the back of the Ivy. In this case the covering of green would do for a wall very much what a topcoat would do for the man whose umbrella poured all the rain down inside his coat collar. The leak in the spout, or the faulty construction of the roof, which might only stain the outside of the bare wall, would be sufficient to completely saturate and permeate the wall covered with Ivy. In such a case the wiser plan would be stop the downpour of water; the more obvious plan, however, is to strip down the greenery, and as this will be followed by speedier drying of the external wall, the interior dampness may disappear also, and the Ivy will be debited with the mischief. All this seems so obvious as to be scarcely worth pointing out. Yet it is owing to the neglect of these obvious considerations that a common prejudice has arisen against this beautiful parasite, which Nature seems so kindly to have provided for the special purpose of hiding the dreary ugliness of what Mr. Ruskin calls our packing-cases. With roofs and spouts in good condition, and especially with a projecting eave over it, Ivy is as beneficial as it is beautiful, and is not used a tenth part as much as it should be.—"Globe."

A Noble Oak.—Mr. Wilson, of Shrewsbury, lately purchased from Colonel Edwards, Great Ness, a fine Oak, supposed to be the largest sound tree in Shropshire. At 5 ft. from the ground it measured 20 ft. in circumference, or 7 ft. in diameter, and with its immense tops contained upwards of 600 cubic ft., and produced about three tons of bark. The total estimated weight is at least thirty tons. An Oak is said to have been felled near Newport, in Monmouthshire, in 1810, measuring 28½ ft. in circumference. It was supposed to be 400 years old, from the number of rings in the grain; and it was stated at the time that the timber sold for £670 and the bark for £200.

THE LIBRARY.

CULTIVATED PLANTS.*

MR. BURBIDGE needs no introduction to the readers of THE GARDEN, who are indebted to him for so many literary and pictorial illustrations, and the favourable estimate which they will have formed of his qualifications cannot fail to be increased by the careful perusal of the handsome volume which now lies before us. Connected at the commencement of his calling with the Royal Horticultural Society's gardens at Chiswick, passing on subsequently to Kew, and making ample use of the opportunities offered him by each of these institutions, it is not to be wondered at that Mr. Burbidge has produced a book full of information, both original and compiled. We learn from the preface that, while primarily intended "as a popular handbook in plant propagation and improvement," it is also meant to "serve young gardeners as a stepping-stone to works of a higher scientific character, and more especially to those of Charles Darwin." Both of these objects it is eminently qualified to accomplish: but it is, moreover, a book which will have an interest for very many besides the class for whom it is especially intended. The amateur gardener cannot fail to benefit by the good practical advice given on such matters as seed-saving and seed-sowing, propagation by division, layers, and cuttings, or by grafting and budding; while the summary of observations upon hybridizing, cross-breeding, and artificial fertilization abound with useful hints to those who dabble in these interesting branches of experimental horticulture. This part of the volume—and, indeed, the whole of it—is eminently suggestive; in fact, if we were asked to select one epithet by which to characterize the book, the one just mentioned would be that which we should choose. Thus, speaking of cuttings, Mr. Burbidge says:—"It is curious to observe that while many gardeners strike *Ericas*, *Epacris*, and *Azaleas* readily from cuttings, they rarely, if ever, think of attempting to propagate new or rare *Conifers*, or hardy evergreen and deciduous shrubs in the same way. How often do we see, in looking over a great garden, *Dracenas*, *Ericas*, *Crotons*, *Gardenias*, and other exotics propagated by the hundred; but how rarely are we shown a batch of young *Hollies*, *Abies*, *Piceas*, or a pan filled with rooted cuttings of some rare and beautiful hardy *Conifer* or ornamental shrub!"—and yet the one is just as easy to propagate from cuttings as the other. Again, in another passage—"It should always be borne in mind that our fruit tree culture is unnatural, that is, we do not want a crop of natural fruit, but enormous crops of unnatural ones, that is to say, the more the succulent seed-vessels exceed the seed in propagation, the better we are pleased." It would be impossible to put more strongly the aim of artificial as opposed to natural selection, the former tending to the benefit of the species, the latter to that quality in it which is of most importance to man. The practical gardener will find in the "propagator's calendar," with which the volume concludes, succinct but sufficient directions for his guidance in this branch of his profession during each month of the year.

The bulk of the work is occupied with a general review of some of the most popular groups of cultivated plants, with notes on their propagation and natural affinities. This is somewhat oddly arranged alphabetically under the Latin names of the different natural families. It contains a sketch of the horticultural history of each group, especial attention being paid to the hybrids, the origin of which is given wherever possible, and the author's acquaintance with the literature of the subject is manifest throughout. Foreign and English gardening periodicals are freely quoted, and many interesting facts, which would probably be lost sight of in such journals, are brought under notice, and thus rescued from forgetfulness or obscurity. References to published figures render this portion of the work still more complete and useful. While work done is thus fully chronicled, suggestions for future experiments are thrown out when necessary. Thus, for example, speaking of the *Palmaceae*, Mr. Burbidge writes:—"It is rather singular that none of our lynx-eyed propagators have suc-

* "Cultivated Plants: their Propagation and Improvement." By F. W. Burbidge. London: Blackwood, 1877.

ceeded in hybridising Palms. Their bisexual flowers would rather facilitate cross-breeding than otherwise; and if fruit-bearing plants can be procured of *Cocos Weddelliana*, *Chamaerops humilis*, *Calamus ciliaris*, or any of the dwarf-growing species of *Geonoma*, *Areca*, or *Chamaedora*, pollen could in most cases be procured from such allied species or genera as continue flowering nearly all the year round in one or other of our great botanic or public gardens." The only hybrid Palm mentioned by Mr. Burbidge is one obtained by M. Denis, of Hyères, by fertilizing a variety of *Chamaerops humilis* with the pollen of the Date Palm (*Phoenix dactylifera*). Attention is also especially directed to the *Melastomaceae*, in which group little has been done by hybridizers, although the few results obtained have been remarkably beautiful. Some of the important results which have been produced from apparently accidental variations are duly chronicled, such as the Suffolk Wheat, which originated about thirty years since with an Ipswich farmer, "merely by the accident of a very fine ear sticking behind the button of his coat as he was one day descending the ladder from the mow." The Potato Oat is the result of a single stalk which was found growing in a Cumberland Potato field fifty years ago; and, among fruits, the Black Eagle Cherry (which, on its first fruiting, was condemned by the Fruit Committee of the Horticultural Society), owed its preservation "to the intercession of one of Mr. Knight's children, who had planted the stone from which it sprang, and so one of our best Cherries was preserved to our gardens." The Irish Yew, again, which is doubtless a chance seedling from the common Yew, was "found in 1780 on a mountain near Benoughlin, whence it was introduced to the gardens at Florence Court, the residence of Lord Enniskillen, and from this solitary example all those now grown have originated." We believe that the well-known Purple Beech, now so frequent in gardens, is stated to have originated in a natural sport found in a forest in Germany. The Pansy, which is supposed to be a cross between *V. tricolor* (the Wild Heart's-ease of our corn-fields), and *V. altaica*, was first raised by Lady Mary Bennet, assisted by her gardener, Mr. Richardson, at Walton-on-Thames, about 1810 or 1812. The Foxglove is one of the plants which Mr. Burbidge commends to the notice of his readers, saying, truly enough, that if some intelligent florist would but take up its improvement, it would soon become one of the handsomest of hardy garden flowers. It is strange, indeed, that this matter of the improvement and utilization of our wild plants has not been taken up more extensively, there are so many of them which would probably amply repay any trouble which might be spent on them, such, for example, as the common blue Germander Speedwell (*Veronica Chamædrys*), which might soon be made into a very useful border plant for spring bedding.

It should be mentioned that the volume under notice is rendered additionally attractive by some excellent woodcuts. It is almost certain to reach a second addition, in which case we trust that the somewhat large crop of typographical errors will be reduced, and that the cover will be adorned with some more artistic device, or failing this, be left plain; for the singular combination of a plant of *Lagurus* (?) and an Acorn germinating in a way hitherto unheard of is neither accurate nor artistic. When we have said that there is a very full and excellent index, and that the book, from one cover to the other, is full of useful information and practical suggestions, we are of opinion that we shall have sufficiently commended it to the notice and careful perusal of all readers of THE GARDEN.

B. J.

"THE AMERICAN FRUIT CULTURIST." *

This is an admirable book by an experienced and able cultivator, long accustomed to express himself with clearness and force in writing on pomology. It is a model of clearness and thoroughness, and is illustrated with over 500 accurate illustrations. The present is the eighth revised edition. The first edition of the "Fruit Culturist," the basis of the present work, was written more than twenty years ago, and a year before the appearance of Downing's first edition of the "Fruits

"The American Fruit Culturist." By J. J. Thomas. New York: W. Wood & Co.

and Fruit Trees of America." It was subsequently much enlarged, and several revised editions afterwards appeared. The rapid progress made of late years in the culture of fruit has required a still further revision. The present edition has been newly arranged, and most of it rewritten. Being intended as a guide to the practical cultivator, its object is to furnish useful directions in the management of the nursery, fruit garden, and orchard, and to assist in the selection of the best varieties for cultivation. It does not claim to be a complete work on the pomology of the country, but aims to give full descriptions only of valuable or promising fruits suited to the country at large, or which may have been popular in certain districts. Varieties which are very little known, whose position or value is undetermined, or which have been found unworthy of further attention, are consigned to the general descriptive list and index, where their leading characteristics are briefly noticed. As some confusion would result from a promiscuous assemblage of all the different varieties, a systematic arrangement has been adopted for the principal fruits. By placing them under separate and characteristic heads, the cultivator is enabled to distinguish and remember each sort with more readiness than where all are thrown indiscriminately together. The names of those fruits which have been proved of the greatest general value, or which have received a large vote in their favour, either in particular regions or throughout the country, are distinguished by being printed in small capitals. One of the chief points for determining the classification is the time of ripening; and the principal fruits are separated into summer, autumn, and winter sorts. As the time of ripening, however, varies several weeks in different parts of the country, and no exact line could be drawn for these three divisions, it would be strictly correct to classify them as early, medium, and late. With this understanding, however, the terms used will answer the purpose, and will not mislead. It is pleasant to think of the impetus to good fruit culture such a book gives in land with such an excellent climate for fruit-growing in nearly all parts of its vast extent. Although concerning what is to us for the most part a new world of fruits, the book has many chapters of value to cultivators everywhere, and we shall probably, at a future time, reprint some of the matter of most interest to the English reader. With a fine sunny climate, abundance of land, and advisers such as the author of this, it is not surprising that the Americans are supplying the markets of Europe as well as their own country with hardy fruits.

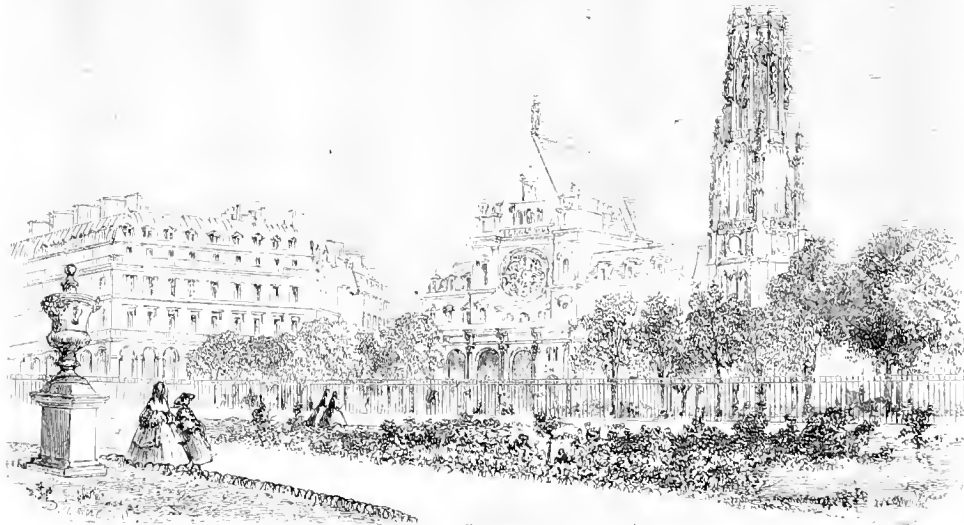
Early Vegetables in New York.—"The Grocer" gives the following information in regard to the early vegetables sent to the New York market:—Among the first vegetables to arrive in this market is Asparagus. Our first supply comes from California, and is shipped in the ice cars containing salmon; it brings about 3s. per bunch. A little later on we receive Asparagus from Florida at 4s. per bunch. Gradually as the season advances, our sources of supply work northward to Savannah, Charleston, Norfolk, until about the first of May, when the product of the New York market gardens begins to appear. California also has the honour of supplying us with the first Cauliflower, which is shipped in the same manner as Asparagus, and is worth when it first appears about 4s. per head. Among the most prominent of our January arrivals may be mentioned Cucumbers and Lettuces, the first arrivals of both of which we receive from Massachusetts. The first Cucumbers to arrive are very large, measuring from 12 in. to 14 in. in length, and cost sometimes as much as 10s. each. About the middle of June, when the season is at its height, 3d. each is more than can be realized by the New Jersey and Long Island product. Lettuces come also from the Boston hothouses, and are worth 4s. per dozen. In May we begin to receive Lettuces from Long Island at half that price. Canada also contributes her part towards supplying us with luxuries by sending down the finest Rhubarb and Mushrooms received here. The latter are grown in large galleries 20 ft. underground, on the estate of Col. Rhodes, near Quebec. Green Peas have begun to arrive in small quantities. Early Potatoes, Onions, and Tomatoes, come from Bermuda at first, and later in the season from Savannah, Charleston, and Norfolk.

Rye.—It is usually thought that Wheat is the most nutritious of all our cereals, and this opinion is current in almost all works relating to food. Recent investigations by Professor Wanklyn and Mr. Cooper appear to show the contrary. They give the first place to Rye. Rye contains more gluten. It is one-third richer than Wheat. Rye, moreover, is capable of thriving in almost any soil. This fact ought to have an important bearing now that Wheat is rising to war prices.

THE TREES OF PARIS.

THE first thing that strikes an English visitor to Paris is the height and bright aspect of the houses and the abundance of trees, the verdure of which, especially at this season, imparts an air of freshness and beauty on all sides. The English traveller, on issuing from the Gare du Nord, that is to say the station of the French "Great Northern," and driving to one of those favourite quarters of New Paris which have sprung up around the Arc de l'Etoile, will pass along a series of streets, avenues, and boulevards all rendered charmingly fresh and attractive by rows of well-selected trees—first, perhaps, an avenue of Horse Chestnuts, now in full bloom; next, a long line of Paulownias, every branchlet terminated with a spike of purple Foxglove-like flowers, which have given to the Paulownia its popular name, the "Foxglove Tree," just as the Horse Chestnut well deserves, though it has not yet received, the name of the "Hyacinth Tree." In other places Limes are substituted, and I noticed that an avenue of *Ailantus glandulosa*, with its tropical-looking pinnate foliage, produced a charming and luxuriant effect; while in other places the

are filled to repletion with a profusion of flowers that appear to enjoy, and even luxuriate, in their position; and the external palisading, generally of good design and touched with a little judicious gilding, is often, up to a certain height, converted into a pleasant green wall by means of Ivy closely trained to a wire netting, as represented in a recent number of THE GARDEN, making their prison walls an ornament to their captivity. Sometimes this pretty screen of greenery terminates at the height of 4 ft. or 5 ft. in an unbroken and carefully-maintained horizontal line, often in a waved line, and sometimes in a series of escalops, either concave or convex the concave producing, of the two, the more agreeable effect. Many of the new boulevards and avenues of New Paris, in addition to ample trees, are bordered on either side by broad spaces of turf ornamentally planted with flowering shrubs and flower-beds. In these street edgings, as one may fairly term them, the Horse Chestnuts—white and red—Lilacs, Laburnums, and Hawthorns, being just now in full bloom, and brought into absolute luxuriance by the few sunny days which have been so long waited for, impart to the avenues so



Gardens near the Louvre.

Oriental Plane plays a distinguished part. The comparatively smokeless atmosphere of Paris is, it must be admitted, far more favourable to tree growth than that of London; but we might do very much more than has been yet attempted, and if the use of smoke-consuming fire-grates were enforced, there is no reason why London should not rival Paris in the attractive feature of street trees. The beautifully warm and creamy-toned stone of Montmartin, of which the greater part of Paris is built, is one of the secrets of the attractive aspect of the buildings, which conveys at once an impression that causes the traveller involuntarily to exclaim, "Paris is beautiful." Even while passing through the comparatively simple architecture as that presented by the houses of the Boulevard des Batignolles and other third-rate thoroughfares of New Paris, such an exclamation is amply justified; but when he approaches the immediate region of the Arc de l'Etoile and the upper portion of the Champs Elysées, the traveller can scarcely refrain from exclaiming "Paris is superb!" Indeed, the combination of fresh foliage with bright and stately architecture is not to be matched in any other city of the world. The small gardens in front of houses of superior character

treated a lavishness of beauty that, heightened by the long rosy tresses of a kind of Tamarisk hanging in the lovely position of showers of flowers, makes these plantations seem rather the pathways of some fairy city, such as one reads of sometimes but never sees, than the ordinary streets of a European metropolis—yet which are absolutely realised in this wonderful New Paris. At the west end of London something similar might be effected in many situations ready to hand, if only the taste of those who rule such matters in England could be just a little educated. In Westbourne Terrace, for instance, there is a space on either side of the carriage road already planted with shrubs; but they are so closely shut up within stucco walls and balustrading of the same shabby material, that the necessary amount of light and air is denied them, and they always look miserable and unattractive in their continuous struggle for bare life; whereas, if the balustrading of sham stone were swept away, and the black soil between the shrubs clothed with fresh green turf, carefully tended, and renewed as often as required, then with some little ingenuity exercised in the choice of such shrubs and flowers as would be sure to enjoy themselves in that situation, something very bright,

open and pretty might be effected, in place of the dingy attempt at the introduction of a little foliage which is at present rather an eyesore than an ornament, and the exchange of which for more open space would be a positive gain. Our authorities would cavil at the phrase, "turf which should be carefully tended and renewed as often as required." They would shrug their shoulders, and ask, "who is to bear the expense?" Do they imagine that Paris has been made as beautiful as it is, and maintained, without expense. Why, I find that each tree that lends its leafy beauty to these endless avenues and boulevards costs the Municipality of Paris 100 francs a year. The first outlay is a mere trifle in comparison with the steady and continuous expense that is required, but could a certain amount of public money be better spent than in the

have no hope of seeing in London anything like the tree beauty of Paris.

NOEL HUMPHREYS.

The Fern-leaved Aralia (A. filicifolia).—This very elegant, fine-foliaged plant has stems of a deep olive colour, blotched with pale green; the leaves are dark green, glabrous, twice pinnately divided, with a single lobe at the end; the pinnae are about eight in number on each side of the midrib, each one being divided nearly to the base into linear, minutely saw-toothed and spine-pointed segments. The younger leaves are more finely cut than those first formed. It was exhibited last year at the Brussels International Exhibition, under the title of *Aralia spectabilis*; but the name of *A. filicifolia*, which was given to it by its discoverer, Mr. Charles Moore, has taken precedence. It was introduced, we believe, by



The Fern-leaved Aralia (*A. filicifolia*).

healthful and beautiful adjunct of trees and flowers to every great centre of civilization? Economy and tight pocket buttoning are doubtless civic virtues which have contributed their share towards the wealth and prosperity of England—but virtues of that class may be overdone. I have known model Englishmen, of good means, good education, and possessing many good qualities, who were such utter slaves to this British virtue of tight pocket buttoning—that they have strongly objected to taking a house with a garden, on the sole account of the expense of "keeping it up." These gentlemen have defended their views to me by declaring that they really have "no objection to flowers"—but that "keeping up" a garden of their own, seemed to them a weak-minded waste of money. Till such views are greatly moderated, we can

Mr. B. S. Williams, of Holloway, from the South Sea Islands.

The North American Papaw Trees.—In our collections of trees it is rare to find the North American Papaw, and yet to many its fruit is very agreeable and refreshing, quite as much so as the Banana. The tree is entirely hardy, of rapid growth, curious in flower, and an abundant bearer. Chapman in his "Flora of the Southern States" enumerates three other species, which may be designated, according to their several peculiarities, as Small-flowered, Great-flowered, and Dwarf Papaw. These are all shrubs, and may not prove hardy in the North, unless we except the first of them, which has the highest northern limits of growth. The Papaw is the only representative which we possess of an otherwise tropical family of edible-fruited trees. Prominent among its members may be mentioned the Custard Apple and the Sour Sop of the West Indies, and the Sweet Sop, native of the Malay Islands. The cultivation of the native Papaw is of the very easiest character, either by seeds or suckers, and it may be grown in almost any kind of soil. As an ornamental tree it is deserving of notice.—"Weekly Tribune."

THE PLANT-LORE OF SHAKESPEARE.

(Continued from p. 459).

Mints.

Perdita. Here's flowers for you,
Hot Lavender, Mints, Savory, Marjoram.
Winter's Tale, act iv., sc. 3.

The Mints are a large family of highly-perfumed, strong-flavoured plants, of which there are many British species, but too well known to call for any further description.

Mistletoe.

Timon. The trees, though summer, yet forlorn and lean,
O'ercome with Moss, and baleful Mistletoe.
Titus Andronicus, act ii., sc. 3.

The Mistletoe was a sore puzzle to our ancestors, almost as great a mystery as the Fern. While they admired its fresh, evergreen branches, and pretty transparent fruit, and used them largely in the decoration of their houses at Christmas, they looked on the plant with a certain awe. Something of this, no doubt, arose from its traditional connection with the Druids, which invested the plant with a semi-sacred character, as a plant that could drive away evil spirits, yet it was also looked upon with some suspicion, perhaps also arising from its use by our heathen ancestors, so that, though admitted into houses, it was not (or very seldom) admitted into churches. And this character so far still attaches to the Mistletoe, that it is still never allowed with the Holly and Ivy and Box to decorate the churches, and Gay's lines were certainly written in error:—

Now with bright Holly all the temples strow,
With Laurel green and sacred Mistletoe.

The mystery attaching to the Mistletoe arose from the ignorance as to its production. It was supposed not to grow from its seeds, and so how it was produced was a fit subject for speculation and fable. Virgil tells the story thus:—

Quale solet sylvis brumali frigore viscum,
Fronde vivere novæ, quod non sua seminat arbos
Et creceo fetu teretes circumdare truncos.
Æneid, vi., 205.

In this way Virgil elegantly veils his ignorance, but his commentator in the eighteenth century (Delphic Classics) tells the tale without any doubts as to its truth. "Non nascitur e semine proprio arboris, at neque ex insidentium volucrum fimo, ut putavere veteres, sed ex ipso arborum vitali excremento." This was the opinion of the great Lord Bacon; he ridiculed the idea that the Mistletoe was propagated by the operation of a bird as an idle tradition, saying that the sap which produces the plant is such as "the tree doth excrete and cannot assimilate." So that we need not blame Gerarde when he boldly said that "this excrecence hath not any roote, neither doth encrease himselfe of his seed, as some have supposed, but it rather commeth of a certaine moisture gathered together upon the boughes and joints of the trees, through the barke whereof this vaporous moisture proceeding bringeth forth the Mistletoe." We now know that it is produced exclusively from the seeds probably lodged by the birds, and that it is easily grown and cultivated. It will grow and has been found on almost any deciduous tree, preferring those with soft bark, and growing very seldom on the Oak. Those who wish for full information upon the proportionate distribution of the Mistletoe on different British trees will find a good summary in "Notes and Queries," vol. iii., p. 226.

Moss.

(1) *Adriano.* If ought possess me from thee it is dross,
Usurping Ivy, Brier, or idle Moss.
Tempest, act iv., sc. 1.

(2) *Timon.* The trees, though summer, yet forlorn and lean,
O'ercome with Moss and baleful Mistletoe.
Titus Andronicus, act ii., sc. 3.

(3) *Apemantus.* These Mossed trees
That have outlived the eagle.
Timon of Athens, act iv., sc. 3.

(4) *Holspur.* Steeples and Moss-grown towers.
1st Henry IV., act iii., sc. 1.

(5) *Oliver.* Under an Oak whose boughs were Mossed with age,
As You Like It, act iv., sc. 3.

(6) *Arviragus.* The ruddock would,
With charitable bill,
Bring thee all this;
Yea, and furr'd Moss besides when flowers are none,
To winter-ground thy corse.
Cymbeline, act iv., sc. 2.

If it were not for the pretty notice of Moss in the last passage (6), we should be inclined to say that Shakespeare had as little regard for "idle Moss" as for the "baleful Mistletoe." In his day Moss included all the low-growing and apparently flowerless carpet plants which are now divided into the many families of Mosses, Lichens, Club Mosses, Hepaticæ, Jungermanniæ, &c., &c. And these plants, though holding no rank in the eyes of a florist, are yet deeply interesting, perhaps no family of plants more so, to those who have time and patience to study them. The Club Mosses, indeed, may claim a place in the garden if they can only be induced to grow, but that is a difficult task, and the tenderer Lycopodiums are always favourites when well grown among greenhouse Ferns; but for the most part, the Mosses must be studied in their native haunts, and when so studied, they are found to be full of beauty and of wonderful construction. Nor are they without use, and it is rather strange that Shakespeare should have so markedly called them "idle," or useless, considering that in his day many medical virtues were attributed to them. This reputation for any medical virtues they have now all lost, except the Iceland Moss, which is still in use for invalids; but the Mosses have other uses. The Reindeer Moss (*Cladonia rangiferina*) and Rock-hair (*Alectoria jubata*) are indispensable to the Laplander as food for his reindeer, and *Usnea florida* is used in North America as food for cattle; the Iceland Moss (*Cetraria islandica*) is equally indispensable as an article of food to all the inhabitants of the extreme North; and the Tripe de la Roche (*Gyrophora cylindrica*) has furnished food to the Arctic explorers when no other food could be obtained, while many dyes are produced from the Lichens, especially the Cudbear (a most discordant corruption of the name of the discoverer, Mr. Cuthbert), which is the produce of the Rock Moss (*Lecanora tartarea*). So that even to us the Mosses have their uses, even if they do not reach the uses that they have in North Sweden, where, according to Miss Bremer, "the forest, which is the countryman's workshop, is his storehouse, too. With the various Lichens that grow upon the trees and rocks, he cures the virulent diseases with which he is sometimes afflicted, dyes the articles of clothes which he wears, and poisons the noxious and dangerous animals which annoy him."—(Quoted from Macmillan's—"Footsteps," &c.).

As to the beauty of Mosses and Lichens we have only to ask any artist or go into any exhibition of pictures. Their great beauty has been so lovingly described by Ruskin ("Modern Painters"), that no one can venture to do more than quote his description. It is well known to many, but none will regret having it called to their remembrance—"placuit semel—decies repetita placebit"—space, however, will oblige me somewhat to curtail it. "Meek creatures! the first mercy of the earth, veiling with hushed softness its dentless rocks: creatures full of pity covering with strange and tender honour the sacred disgrace of ruin, laying quiet fingers on the trembling stones to teach them rest. No words that I know of will say what these Mosses are; none are delicate enough, none perfect enough, none rich enough. . . . They will not be gathered like the flowers for chaplet or love-token; but of these the wild bird will make its nest and the wearied child its pillow, and as the earth's first mercy so they are its last gift to us. When all other service is vain from plant and tree, the soft Mosses and grey Lichens take up their watch by the headstone. The woods, the blossoms, the gift-bearing Grasses have done their parts for a time, but these do service for ever. Trees for the builder's yard, flowers for the bride's chamber, corn for the granary, Moss for the grave."

Mulberries.

(1) *Titania.* Feed him with Apricocks and Dewberries,
With purple Grapes, ripe Figs, and Mulberries.
Midsummer Night's Dream, act iii., sc. 1.

(2) *Colymbia.* Thy stout heart
Now humble as the ripest Mulberry
That will not bear the handling.
Coriolanus, act iii., sc. 2.

- (3) *Prologue.* Thisbe tarrying in Mulberry shade.
Midsummer Night's Dream, act v., sc. 1.
 (4) The birds would bring him Mulberries and ripe red Cherries.
Venus and Adonis (see Cherries).

We do not know when the Mulberry, which is an Eastern tree, was introduced into England, but probably very early. We find in Archbishop Elfric's Vocabulary, "morus vel rubus, mor-beam," but it is doubtful whether that applies to the Mulberry or Blackberry, as in the same catalogue Blackberries are mentioned as "flavi vel mori, blace-berian." There is no doubt that Morum was a Blackberry as well as a Mulberry in classical times. It is probably the fruit mentioned by Horace—

Ille salubres
 Æstates peraget, qui nigris prandia moris
 Finiet ante gravem quæ legerit arbore solem.
Nat. ii., 4, 21.

And it certainly is the fruit mentioned by Ovid—

In duris hæreant mora rubetis.—*Metam.*, i., 105.

In the dictionaries of John de Garlande (thirteenth century) we find, "Hec sunt nomina silvestrium arborum, qui sunt in lucco magistris Johannis; quercus cum fago, pinus cum lauro, celsus gerens celsa," and Mr. Wright translates "celsa" by "Mulberries," without however giving his authority for this translation. But whenever introduced, it had been long established in England in Shakespeare's time. Gerarde describes it as "high and full of boughes," and growing in sundry gardens in England, and he grew in his own London garden both the Black and the White Mulberry. Lyte also, before Gerarde, describes it, and says:—"It is called in the fayning of Poetes the wisest of all other trees, for this tree only among all others bringeth forth his leaves after the cold frostes be past."

As an ornamental tree for any garden, the Mulberry needs no recommendation, being equally handsome in shape, in foliage, and in fruit. It is a much prized ornament in all old gardens, so that it has been well said that an old Mulberry tree on the lawn is a patent of nobility to any garden; and it is most easy of cultivation; it will bear removal when of a considerable size, and so easily can it be propagated from cuttings that a story is told of Mr. Payne Knight that he cut large branches from a Mulberry tree to make standards for his clothes-lines, and that each standard took root, and became a flourishing Mulberry tree.

Though most of us only know of the common White or Black Mulberry, yet, where it is grown for silk culture (as it is now proposed to grow it in England, with a promised profit of from £70 to £100 per acre for the silk, and an additional profit of from £100 to £500 per acre from the grain (eggs)!), great attention is paid to the different varieties; so that M. de Quatrefuges briefly describes six kinds cultivated in one valley in France, and Royle remarks, "so many varieties have been produced by cultivation that it is difficult to ascertain whether they all belong to one species; they are," as he adds, "nearly as numerous as those of the silkworm" (Darwin).

We have good proof of Shakespeare's admiration of the Mulberry, in the celebrated Shakespeare Mulberry growing in his garden at New Place at Stratford-on-Avon. "That Shakespeare planted this tree is as well authenticated as anything of that nature can be . . . and till this was planted there was no Mulberry tree in the neighbourhood. The tree was celebrated in many a poem, one especially by Dibdin, but about 1752, the then owner of New Place, the Rev. Mr. Gastrell, bought and pulled down the house, and wishing, as it should seem, to be 'damned to everlasting fame,' he had some time before cut down Shakespeare's celebrated Mulberry tree, to save himself the trouble of showing it to those whose admiration of our great poet led them to visit the poetick ground on which it stood" (Malone). The pieces were made into many snuff-boxes and other mementoes of the tree.

Mushrooms.

- (1) *Prospero.* You demy-puppets, that
 By moonshine do the greensome ringlets make,
 Whereof the ewe not bites, and you whose pastime
 Is to make midnight Mushrooms.
Tempest, act v., sc. 1.
 (2) *Aja.* Toad's-stool, learn me the proclamation.
Troilus and Cressida, act ii., sc. 1.

I join these two passages together because the first, besides the notice of the Mushroom, contains also the notice of fairy-rings, which are formed by fungi, though probably Shakespeare knew little of this; but the two passages contain his whole fungology; and it is not much to be wondered at that he has not more to say about them. In his time "Mushrooms or Toadstooles" (they were all classed together) were looked on with very suspicious eyes, though they were so much eaten that we frequently find in the old herbals certain remedies against "a surfeit of Mushrooms." Why they should have been connected with toads has never been explained, but it was always so:—

The grieslie Todestoole growne there mought I see,
 And loathed paddocks lording on the same.
Spenser.

They were associated with other loathsome objects besides toads, for "Poisonous Mushrooms groweth where old rusty iron lieth, or rotten clouts, or neere to serpents' dens or routes of trees that bring forth venomous fruit. . . . Few of them are good to be eaten, and most of them do suffocate and strangle the eater. Therefore, I give my advice unto those that love such strange and new-fangled meates to beware of licking honey among thornes, lest the sweetness of one do not counteracte the sharpnesse and pricking of the other." This was Gerarde's prudent advice on the eating of "Mushrooms and Toadstooles," but now-a-days we know better. Cowley said—

Where once such fairies dance, no Grass doth ever grow,
 and in Shakespeare's time the sheep refused to eat the Grass on the fairy-rings. I believe they now feed on it, but I have not been able to ascertain this. But as to human food, the fungologists tell us that those who refuse to eat any fungus but the Mushroom (*Agaricus campestris*) are not only foolish in rejecting most delicate luxuries, but also very wrong in wasting most excellent and nutritious food. Fungologists are great enthusiasts, and it may be well to take their prescription *cum grano salis*; but we may qualify Gerarde's advice by the well-known enthusiastic description of Dr. Badham, who certainly knew much more of fungology than Gerarde, and did not recommend to others what he had not personally tried himself. After praising the beauty of an English autumn, even in comparison with Italy, he thus concludes in his pleasant and useful book, "The Esculent Funguses of England":—"I have myself witnessed whole hundredweights of rich, wholesome diet rotting under trees, woods teeming with food, and not one hand to gather it. . . . I have, indeed, grieved when I reflected on the straitened conditions of the lower orders to see pounds innumerable of extempore beefsteaks growing on our Oaks in the shape of *Fistula Hepatica*; *Ag. fusipes*, to pickle in clusters under them; *Puffballs*, which some of our friends have not inaptly compared to sweetbread for the rich delicacy of their unassisted flavour; *Hydria*, as good as oysters, which they very much resemble in taste; *Agaricus deliciosus*, reminding us of tender lamb's kidneys; the beautiful yellow *Chautarelle*, that *kalon kagathon* of diet, growing by the bushel, and no basket but our own to pick up a few specimens in our way; the sweet nutty-flavoured *Boletus*, in vain calling himself *edulis* when there was none to believe him; the dainty *Orcella*; the *Ag. heterophyllus*, which tastes like the crawfish when grilled; the *Ag. ruber* and *Ag. virescens*, to cook in any way, and equally good in all."

Musk Roses (see Rose).

Mustard

is mentioned in a few places, but only as the condiment, and with no reference to the plant. H. N. ELLACOMBE.

(To be continued).

Phylloxera on American Vines.—M. Bontin (in *Comptes Rendus*) finds that a resinous principle exists in American Vines which have resisted the attacks of the Phylloxera, especially in the bark of the roots; that it is present in about double the proportion in which it occurs in the French Vines. He thinks the resisting power of the American Vine due to this resinous substance. The puncture made by the insect is cicatrized by the exudation of the resinous matter when this is present in sufficient quantity, and the escape of the nutritive juices of the plant is thereby prevented.



Lilium Martagon.



Dianthus dentatus hybridus.



Helianthemum pulverulentum.



Saxifraga Aizoides.



Rheum australe.



Bartonia aurea.



Mimulus cupreus hybridus.



Phloxis Samia



Gentiana cruciata.



Scilla peruviana.



Calendula officinalis fl-pl.



Ligusticum peloponesiacum.

SOME HARDY FLOWERS OF THE WEEK IN LONDON GARDENS.

HARDY FLOWERS IN LONDON GARDENS.

THE bright sunshine which we have had during the past few days has had a beneficial effect on hardy flowers, and especially on those growing in moist, rich soil. St. Bruno's Lilies (*Anthericum Liliastrum*) are just now very attractive, as are also large beds of Squills (*Scilla peruviana*, and its white-flowered variety), in Mr. Barr's grounds at Tooting. When grown in free, well-drained soil in warm situations, such as the edges of shrubby borders, the blue-flowered form of this Squill ranks amongst the choicest of June-blooming hardy plants. The handsome drooping flowers of *Hyacinthus amethystinus* are likewise now very beautiful, as are also the flame-coloured blossoms of *Delphinium nudicaule*. Feather *Hyacinths* of various kinds are now bearing large trusses of bluish Violet blossoms; Sun-roses (*Helianthemum*), too, are now laden with blooms, and, where growing on the edges of borders or on rockwork, they rank amongst the most effective flowers now in season. The bright golden blossoms of *Linum campanulatum* are being produced in abundance, as are also the long trusses of ivory-white flowers of *Saxifraga cochlearis*; the double-flowered form of the common Red Campion (*Lychnis diurna*) is laden with rosy blossoms, and the Gentian-leaved Speedwell (*Veronica gentianoides*) is also still bearing racemes of pale blue flowers. The bright purple

*Prunella grandiflora.**Helonias latifolia.*

blossoms of *Primula japonica* rank amongst the most attractive flowers now in bloom, and the yellow Bachelor's-buttons (*Ranunculus acris* fl.-pl.) may still be bought in quantity in our flower markets. Large plants of the Italian Alkanet (*Achusa italica*) are literally covered with showy blue flowers; this is a plant which deserves to be more frequently met with in shrubberies, for associated with *Periwinkle* (also in blossom), it has a fine effect, and when planted in good soil it will thrive for years if undisturbed. The bright golden-flowered *Genista prostrata* now forms one of the most effective of rock plants, or planted in hollow trees it has a very graceful appearance. In addition to the above may be found in good condition many of the *Geraniums*, *Silenes*, *Alliums*, and the white and yellow *Asphodels*. *Pinguicula grandiflora*, too, is one of the prettiest of plants for the edgings of lakes, ponds, or other moist places, its numerous dark blue flowers rendering it very ornamental. The white and blue forms of *Atragene austriaca* are furnishing great quantities of showy, Clematis-like blossoms, and when grown over heaps of dead roots, or allowed to run wild among shrubs, they are very effective. The Daisy-like flowers of *Erigeron purpureus* may also now be gathered in abundance. *Lasthenia glabrata* and *Anthemis arvensis* are likewise flowering freely; some of the *Rheums*, too, are throwing up their gigantic flower-spikes. The *Euphorbias* are not at all unattractive plants when grown in dense bushes and covered with yellow inflorescence as they can be seen at Kew; the proper place for them is, of course, in the wild garden, along with Golden Rods and Michaelmas Daisies. *Burrielia gracilis* and *Centaurea montana* are well in flower, as are also *Chelidonium majus*, and *Stylophorum diphyllum*. *Pyrethrums* of various kinds are beginning to open their China Aster-like blossoms, and the blue and purple-flowered hybrid Larkspur will soon be very attractive. Flowers of the single *Narcissus poeticus* may still be gathered, and those of the double-flowered variety are still abundant in our markets. S.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Pelargoniums.—Some autumn-struck cuttings of scarlet and pink *Pelargoniums* should now be potted for winter-flowering. Amongst the single red varieties I have found nothing better than *Vesuvius*, nor in single pinks the old sort *Christine*; both are short-jointed, compact growers, producing their flowers freely through the winter with a little warmth. The new double variety *Wonderful* (similar in habit) as a scarlet is still better, its flowers lasting longer. To prepare them for winter work they need special treatment; the first essential point is not to over-pot, the object being to have the plants in a dwarf, compact, thoroughly ripened condition, consequently the pots used should not be over 6 in. in diameter; ordinary loam, with a little rotten manure and sand, is the best material in which to grow them; press the soil quite firm in the pots, plunge them in a bed of ashes out-of-doors in a situation fully exposed to the sun, stop the shoots as necessary to induce bushy growth, pick off all flowers as soon as they are formed, give water as required; they will need nothing more until September, by which treatment the plants will be in the hard, stocky condition that enables them when placed in warmth to produce flowers freely instead of pushing off into growth. **Heliotrope.**—Some spring-struck cuttings should now be moved into 6-in. or 7-in. pots, plunged outside, kept stopped, and the flowers picked off similarly to the *Pelargonium*. This sweet-scented favourite so managed will produce flowers, with the assistance of a little warmth, all through the autumn up to the end of the year.

Pot Roses that have flowered and have now about completed their blooming should, if they require it, be moved into larger pots, but where a liberal supply of manure-water is given them, they do not need so much root-room. Any long, straggling shoots should be shortened back and the weaker wood cut away. Plants grown in this way should always be on their own roots, so that their strong sucker shoots can be retained, as these make wood that produces the finest flowers, whereas, if grafted plants be used, the shoots produced below the union with the stock will necessarily have to be removed. In potting, use good strong loam with one-fifth rotten manure and a little sand; light soil is totally unsuited for pot Rose culture. The plants should be plunged up to the rims of the pots in coal ashes in a light situation, and should not be allowed to suffer for want of water. Those that do not require potting should receive manure-water once a week; those that are potted should have it as soon as the roots get fairly hold of the soil; this treatment is essential to promote free growth, for upon the strength of the wood made through the summer in a great measure will depend their blooming capabilities the ensuing winter and spring. Previous to turning them out, see that they are perfectly free from aphides, red spider, and mildew; should any of these pests exist, dip in or syringe with Gishurst (2 oz. or 3 oz. to a gallon of water)—an infallible remedy for mildew as well as insects. There is no plant that is more deserving of attention than pot Roses, not only for the flowers they produce through the winter and spring, but also, when well managed, for their longevity, as when fairly treated they will go on improving for a dozen years or more, a single plant at that age producing as many flowers in a season as half-a-dozen newly-potted specimens.

Lilies in pots will now require more water as the soil gets full of roots, and should be placed in an open situation away from the influence of walls or trees to avoid weak and spindly growth; turn the pots round every two or three weeks to prevent the plants getting drawn to one side. The earlier-flowering kinds, such as *L. eximium*, will now be benefited by the application of manure-water. See that all are kept perfectly free from aphides, which get down into the points of the shoots on the partially developed leaves, and in a very short time cause them to become curled and permanently injured. A little Tobacco-water, syringed into the points of the affected shoots, and on the under sides of the leaves, will be found effectual in destroying them. The plants will be much better for being plunged in ashes, which will save labour by their requiring considerably less water and greatly benefit them by preventing their thick mass of roots from being affected by the sun. The earliest-flowered kinds should be staked and tied, so far as they require it, before the growth gets too far advanced.

Deutzias in pots, that were forced in the winter, and have been since kept in a Vinery or other structure where a little warmth could be added, will now have so far completed their growth as to be ready for turning out-of-doors; this is one of the few hardy plants that makes its growth for next year's flowering much better when kept inside than in the open air. A good companion to the above is the double-flowering Plum. These should also be plunged during the summer.

Chrysanthemums, that were moved a short time ago into their flowering pots, should now be plunged. It often happens that a few of the strongest shoots of these so far take the lead as to deprive the weak ones of their share of nutriment; where this is the case pinch out the points and peg them out horizontally to the sides of the pots.

Carnations and Pinks.—Winter-flowering Carnations that have ceased blooming, if desired to be kept for another year, should now be moved into pots of a larger size; all the loose soil should be removed from the ball without disturbing the roots much; they should be potted in good loam mixed with a little rotten manure, leaf-mould, and sand; drain them well, or, by being exposed through the summer to heavy rains, the soil will get in a wet, unsuitable condition for the roots; they should be plunged out-of-doors in coal-ashes, which is the best material to keep out worms. At the time they are potted some more cuttings should be taken off, putting six or eight in 4-in. or 5-in. pots in sandy soil; covered with a propagating glass shaded and kept a little warm, they will soon root, and make nice plants before autumn. Cuttings of Pinks for forcing should also be put in and potted on singly as soon as rooted; there are few plants more suitable for amateurs to grow than these winter and spring-flowering Carnations and Pinks; they are easily managed, do not occupy much room, and with a little warmth afford a succession of sweet-scented flowers alike suitable for bouquets or vase decoration. They are not much subject to insects, though green fly sometimes attacks the young leaves, its presence, however, is easily detected by the leaves beginning to curl up; dipping and syringing with Tobacco-water will be found the best remedies. The plants must always be sufficiently supplied with water, or they get into a stunted condition, from which it is difficult to induce them to emerge.

Salvia gesneræfolia.—Cuttings put in some time ago will be ready for moving into 6-in. pots. This most useful winter-flowering subject naturally assumes a bushy habit, but to furnish the plants with plenty of shoots near the base the points of the leading growths should now be pinched out. These, in like manner, ought to be at once plunged out-of-doors in a sunny, sheltered situation. It is a free grower, and makes roots rapidly. In the course of six weeks' time the plants will require moving into 10-in. or 12-in. pots for blooming, keeping them outside till the beginning of September.

The White-flowered Abutilon Boule de Neige is deserving of a place in even the most select collection of greenhouse plants. It blooms nearly during the whole year, producing in succession its beautiful drooping flowers, alike suitable for display on the plant or for cutting; it is of the easiest possible management. Cuttings of the half-ripened shoots, 5 in. or 6 in. in length, inserted singly in 60-sized pots in sand, kept moist, shaded, and covered with a propagating-glass in a little warmth, will strike in a few weeks, and make nice small specimens that will bloom through the autumn and winter. *A. vexillarium* and *A. vexillarium igneum* are equally worthy of cultivation, flowering freely in small pots with ordinary greenhouse treatment. The two latter, grown with single stems 12 in. or 18 in. in height, and then stopped so as to form a bushy head, make beautiful miniature standards suitable for table or window decoration, or for placing in the greenhouse, where if raised on inverted pots they greatly relieve the even surface of dwarf-growing subjects.

Centaureas and Coleuses.—If a few small plants of the different varieties of *Centaurea* used for bedding be placed singly in 6-in. or 7-in. pots, and grown on in a cold frame or pit, they will be found very useful for standing about in the conservatory amongst flowering plants through the autumn; they also make nice window plants, bearing confinement better than most things. A few of the most handsome-leaved *Coleuses* should now be put into pots proportionate to the required size of the plants—8-in. will be sufficiently large for general decorative purposes; they should be accommodated in a frame or pit, or they may be kept where they are to remain through the summer in the greenhouse.

Petunias and Balsams.—Petunias struck late should also be potted, tying them well out and stopping the shoots to keep them bushy. Many of the double varieties now in cultivation possess a compact habit of growth, and from their easy culture and free continuous-blooming disposition, they are very useful for greenhouse decoration during the summer and autumn. Earlier plants of these Petunias that have been flowering for some time should be assisted with manure-water and kept tied into shape, by which means they will continue blooming for some time yet. The later-sown Balsams should be moved out of the small pots they occupy into others 7 in. or 8 in. in diameter. These quick-growing, gross-feeding plants require rich soil, a light position, and a plentiful supply of water to produce them in anything like condition.

Kitchen Garden.—Another sowing of Peas should be made immediately; it will be better to put in some second early sort, as the tall late kinds after this time will do little good in most parts of the country. Continue to earth up successional sowings as they appear above ground, and stake them before they get blown about by the wind.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

June 11.—Potting *Alocasia macrorrhiza variegata* and *A. metallica*; also *Amarantus bicolor* and *A. tricolor*. Potting-off *Snowflake* *Lobelia*. Sowing American Cress, more Peas, and Chicory. Planting Cucumbers indoors, and on border French Beans that have been raised in pots. Putting in cuttings of *Chrysanthemums*, *Gloxinias*, and *Pelargoniums*. Pruning back superfluous wood on wall fruit trees, and nailing in the leading shoots. Picking the dead flowers off Azaleas and placing them in greenhouse to make their growth. Netting Gooseberry and Currant trees. Tying Lettuces. Thinning the shoots of autumn-fruiting Raspberries.

June 12.—Shaking out plants of *Aërides Fieldingi*, dividing them into small pieces, and potting them. Sowing Broad Beans, Coleworts, and Spinach between Currant bushes; also a little *Scorzonera*. Planting Asparagus, Buda Kale, and Couve Trenchuda. Pricking out Lettuce and Cauliflower plants that have been raised in boxes. Throwing out trenches in which to plant the main crops of Celery. Gathering Strawberries for preserving when perfectly dry. Top-dressing the latest-flowering Lilacs in pots with loam and manure. Thinning Pears on walls that have set too thickly so as to leave two in a bunch. Watering Dahlias with guano-water.

June 13.—Potting Cannas intended for conservatory decoration and placing them in Vinery. Shifting *Iresines* into 10-in. pots. Sowing Larkspurs in pots. Planting Pinks, Lily of the Valley, Daisies, Forget-me-Nots, Pansies, Stocks, Asters, and Winter Greens. Pegging down bedding plants in flower gardens. Layering Sir Charles Napier Strawberry. Watering border of second Vinery, in which the Grapes are just colouring. Putting coal-ashes under Orchids in pots, and slightly fumigating *Phalaenopsis* house in order to keep down thrips and other insects. Hoeing among Rhubarb crowns, and thinning shoots of Seakale Plants. Putting manure in pit ready for planting with Cucumbers. Taking up bulbs, and clipping *Cerastium tomentosum*.

June 14.—Potting *Love-lies-Bleeding*, *Tropæolum*, and *Verbenas*; also *Cattleya exoniensis* and *C. crispata*; and staking out and repotting old plants of *Bouvardias* that have been cut back. Planting a border of Veitch's Autumn Giant Cauliflower and Cottagers' Kale. Top-dressing Gardenias with a mixture of peat loam, horse-manure, and silver sand. Layering runners of Black Prince and President Strawberry. Watering Peach-house borders inside and out, giving Seakale and Parsnips a watering with guano-water, exposing Peaches that are getting ripe to the full influence of the sun, fumigating *Cattleya-house* for thrips, and preparing a bed on which to sow Lettuce and Endive.

June 15.—Potting shrubby *Calceolarias* into 10-in. pots. Sowing Egyptian Green-flesh Melons, Chicory, more Peas, Radishes, and Spinach. Layering Keen's Seedling Strawberries. Planting Sweet Peas, *Scrophularias*, *Gazanias*, and *Centaureas* in flower garden, and April-sown Lettuces on Celery ridges. Thinning and transplanting Parsley; also thinning Onions, Leeks, and seedling Seakale plants. Putting in *Gloxinia* and *Pelargonium* cuttings. Netting Cherry trees and Strawberries that are getting ripe. Collecting manure with which to make another Mushroom-bed. Sticking Peas and Scarlet Runners, and emptying and refilling Melon pits ready for planting for autumn crops. Syringing outdoor Peach trees with clear water to keep off insects.

June 16.—Potting *Petunias* for conservatory decoration; also *Fuchsias*, scarlet *Pelargoniums*, and *Heliotropes*. Shifting Melon plants just up into 4-in. pots. Planting out a few pot Roses and some April-sown Cauliflower plants and French Beans from pots; also Ice-plants. Pricking out *Cinerarias* and *Primulas*. Putting in *Chrysanthemum* and *Coleus* cuttings, and putting greenhouse plants out-of-doors. Earthing up Potatoes, Melons, and Cucumbers. Levelling laud for Winter Greens. Going over wall fruit trees and picking off curled leaves infested with insects. Thinning Carrots and Turnips, and putting short Grass between Strawberry plants. Pegging down plants in flower garden, and watering them; also watering orchard-house trees and late Vineries with manure-water.

Hardy Flowers.

AURICULAS.—The cultivator of these beautiful flowers should begin to re-pot his plants. The necessary compost is a most important matter, and it is always well that it should be prepared and kept turned occasionally, so as to get it thoroughly sweetened before using. Growers now use a plainer compost than that recommended by the late Mr. George Lightbody and other eminent cultivators of the Auricula. That employed by the Rev. F. D. Horner, our champion Auricula grower, consists of decayed turves of an old pasture that have been suffered to lie by and rot for a year or two, and which are crumbled to pieces with the hands, not sifted, in the proportion of about one-half; one-fourth of good leaf-mould, the same quantity of thoroughly decomposed manure, and some silver-sand, or, better still, some fine charcoal. Some dry cow-droppings may be used in place of the manure, but it should be previously baked in an oven to kill any insects in it. In potting, a 4½-in. pot will be quite large enough for the best plants, unless they be very strong, and a 3-in. pot for the smaller plants. A good-sized crock should be placed over the hole, then a layer of small crocks, and over this again a layer of charcoal. Auricula-pots can scarcely be too well drained, especially for delicate-growing varieties.

For re-potting, a large portion of the old soil should be shaken from the roots, and if the tap root be large, it needs to be cut away to within 1 in. or 2 in. of the leaves, according to the number of roots on it. If the soil be used moist, that is, not quite moist enough to cling to the fingers, no water need be given till the plants require it. In the state of inaction there will be ample moisture to keep the plants fresh and cool, unless dry, hot weather should set in. As soon as potted, the plants should be placed in a frame on a north aspect, and shaded from the sun. The earlier the plants are potted, the sooner do they get into active autumn growth, and this, as most of us know, has much to do with promoting the strength and general well-being of the plants.

CARNATIONS AND PICOTEES.—Now that there seems to be a promise of dry weather, care must be taken that the plants in pots do not suffer from drought; the growing flower-stems must be carefully tied out to stakes, to prevent them being snapped off by the wind. The plants are greatly benefited by top-dressing, which is generally done towards the end of the month. The compost usually employed is that made up of equal parts of yellow loam, leaf-mould, and well-decomposed manure. Some of the earlier varieties will soon require disbudding, especially if good flowers be required for exhibition purposes. Mr. E. S. Dodwell recommends that disbudding should be performed immediately the lateral buds can be removed, leaving, as a rule, the main bud and those proceeding from the third and fourth joints, counting from the top. This is assuming three flowers are to be left. Disbudding will be beneficial under any circumstances, and the remaining flowers are produced in better character. Plants in beds will be similarly benefited by a good top-dressing, and all the plants, whether in pots or beds, should be frequently syringed.

CHRYSANTHEMUMS.—Large-flowering plants, intended for specimens, should be shifted at once into their flowering pots; those 10 in. or 11 in. in width, are best. The soil must be rich, for the plants have a great deal to do in the pots, but they must be well drained.

The foliage of *Chrysanthemums* suffers as much from excessive wet as from drought. Plants that are intended to supply specimen blooms by-and-by should be potted about the end of the month; but the soil required for them need not be so rich as in the case of those for specimens. A close, short-jointed growth is what cultivators should aim at at this season of the year. If the weather set in dry, plants in the open air should be mulched with manure and syringed occasionally.

LILIUMS.—Plants growing in pots should now be fully exposed; set them along the sides of garden walks on a layer of ashes to prevent worms from working into them. In order to have plants of a general symmetrical growth they should be turned round occasionally that each side of the plants may be towards the sun. They should not be crowded, or they may become drawn. Some plants of *L. Thunbergianum* have formed their buds and will soon be in bloom. This is one of the best early-flowering varieties for pot work, and *L. longilorum* succeeds it, with *L. auratum*, *L. tigrinum*, and others in close succession. The plants are greatly benefited by a top-dressing of rich soil, piling it up a little round the rim of the pot so as to form a kind of basin for convenience in giving water.

As the plants show colour in the flower-buds they may have some manure-water once a week or ten days. If worms work in the pots a little lime-water will generally dislodge them.

VERBENAS IN BEDS.—Some have stated that the Verbena is dying out, and that the attempts to produce large and well-formed flowers have been at the expense of constitution. This is perhaps true of some of the varieties, but there are yet a number of strong-growing kinds that are very useful for bedding purposes. Beds of Verbenas of different varieties mixed together have a charming effect in the flower garden, and are to be preferred to beds of a particular variety. If the weather prove dry, the plants will need to be well watered

from time to time. There should be a top-dressing of fine, rich soil also, for the leading shoots of the Verbenas lie close to the ground, and throw out root from the joints, and if these have something to feed upon the plants are greatly helped.

VERBENAS IN POTS.—In some parts of the country Verbenas are finely grown in pots for show purposes. They are placed in the pots at this time of year in a rich soil made up of loam, leaf-mould, manure, and sand, one or two good plants in an 8-in. or 9-in. pot, with a layer of oyster-shells for drainage, having thereon about 2 in. of manure and charcoal mixed. When potted, they are placed in a cool frame to get established, and finally set on a bed of manure 6 in. in depth, with a good drainage beneath. A framework is made on which lights can be put when requisite, so as to protect the plants from heavy rains and wind. After the plants have rooted through to the manure-bed, they are not moved till required for the exhibition tent.

Indoor Fruit Department.

Peaches.—Early Peaches will have nearly completed their growth by this time, and the successful finishing of this year's crop and the prospect of the next will depend upon the treatment which the trees receive now. The fruit that is approaching maturity should



The Trophy Tomato (see p. 493).

be well exposed to the sun by pulling the foliage aside where it shades it, or by pinching it off altogether. The shoots should also be thinned out without hesitation wherever they are too thick—not in the way of shortening them back, which only encourages spray, but by cutting them clean out with the knife. Wherever the young shoots overlap each other, so to speak, they are too crowded, and nothing is gained by retaining so many. They may be tied down upon the older and naked wood which is better shaded, but nowhere should they be so crowded that the light cannot penetrate freely through and among the branches, admitting light and air to the leaves everywhere. As regards temperature, when the fruit is stoned the Peach will bear a high temperature with free ventilation and plenty of moisture at the root; but it is not desirable to subject it to a very strong heat unless time is an object. We have often run early houses up to 90° and 100° on fine days, but a temperature of from 70° to 80° when the fruit is swelling will produce the best results. Peaches that have been hard pushed are never either so large or so well-flavoured; all large and heavy fruit is grown slowly. Late Peaches should be treated like early ones, only that, as they make their growth during the summer, they need not be trained quite so thinly as the former. Peach borders are seldom made so rich or so deep as Vine borders, and, as the soil is often allowed to become very hard, it parts with its moisture more readily, consequently watering is the more necessary when the weather is dry and warm. A firm border suits the stone fruits best, but it is frequently allowed to get too dry. A good soaking of water at the beginning of the season, and a mulching on the top, will do much towards carrying the crops through the critical time, but water should be given liberally throughout the summer.

Stone Fruits in Pots.—Orchard houses, I am afraid, have not as a rule been so successful as some have been led to expect they would be. The trees usually grow and flower well enough, but getting a good set of fruit, and afterwards getting the crop safely past the stoning period, are always ticklish matters. In pruning and pinching the cultivator cannot well go wrong if he always leave a few inches of wood every time he pinches, and is careful not to perform the last operation so late in the season that shoots have not time to form leaf-buds; but in the watering and nursing of the roots he is often at fault. Alternations of heat and cold, and an irregular degree of moisture at the roots, are not conditions favourable to plant growth at any time; but in the case of orchard-house trees in pots they are often ruinous. Everything depends almost upon the watering and general treatment of the roots, from the time the trees come into flower till the fruit is stoned. The pots are usually crammed with roots, which require a large quantity of water every day in dry weather, and one day's neglect at the critical season will sometimes ruin the prospects of a crop. The pots should always be plunged in the border and mulched on the surface, and water should be given whenever the soil appears to be the least dry. The plunging and mulching keep the roots at a uniform temperature, or nearly so; whereas, when the pots are merely stood upon the surface of the border, the temperature of the soil about the roots will sometimes vary as much as 10° or 15° in twenty-four hours, according to the weather, which is simply a killing state of things. And even when plunged, the temperature will vary much, if care be not taken to use water of the temperature of the house. An open tank inside the house will usually contain water at the proper temperature, if it be allowed to stand in the tank for twenty-four hours before using, and no cold water is allowed to run in during that time. Such tanks should always be large enough to hold sufficient water for each day's supply without re-filling. This is the best guide we know of for gauging the size of hothouse tanks. The water that is run in to-day should be used to-morrow, and the tanks filled as soon as emptied.

Figs.—Figs in cold houses, and from which one crop only in the season is expected, should be trained thinly, and the shoots should neither be tied in too tightly nor be stopped. Pruning the Fig for one crop of fruit consists solely in removing a portion of the shoots when they are too crowded, leaving what remains to grow as much as they will; it is at the points of the shoots where the fruit is borne. Other culture consists in keeping the roots within bounds, in order to check exuberant growth, and giving plenty of water throughout the summer. Plants forced in pots for more than one crop should be regularly pinched at every third or fourth joint, to induce successional crops; but pinching should cease by the beginning of August or sooner, in order that the last growth may be furnished with terminal buds, otherwise the first crop the following year will be a failure. In other respects, pot trees require to be treated like the others.

Apples and Pears.—When these are grown under glass as bushes, a restrictive system of training is necessary, and consists

in simply pinching the leading shoots every 6 in. or so, and the side shoots to two or three joints; in other respects they should be treated as directed for stone fruits. It is barely needful to say that all the fruits here mentioned require plenty of air when grown under glass, but they must be guarded against cold draughts. J. S.

The Trophy Tomato.—Having tried all the kinds of Tomatoes advertised, I have come to regard the one, of which the annexed is an illustration (see p. 489), as the best for general culture, being handsome, large, without ribs or sutures, and of a bright red colour, with solid, high-flavoured flesh; if it have a fault, it consists in being too fruitful, for the flowers set in such clusters that if not timely thinned the plant literally dies from over-fruitfulness. It is a late variety; the Orangefield, growing under exactly the same conditions, ripened its fruit a fortnight earlier. This I recommend as the best early variety, and The Trophy as by far the best late sort.—W. WILD-SMITH, *Heckfield*.

STAMPING OUT INJURIOUS INSECT PESTS.

At a special meeting held on Tuesday last, at the offices of the Society of Arts, John Street, Adelphi, a paper on this subject was read by Mr. Andrew Murray, from which the following are extracts.

As to the advantage of the general principle of stamping out, and the necessity of an executive authority to direct it, there cannot be much difference of opinion, but there remains the more difficult question, how much and what kind of interference may be tolerated, and by what safeguards it should be surrounded, and how far it is workable or not? The administrative machinery by which it should be carried out need not concern us. If Government resolve to interfere, it must fall to them to make their own plans and find their own tools—but as a contribution towards elucidating the various points which they would have to consider, I think I may usefully draw the attention of the meeting to a few of the different ways in which interference might be beneficially exercised. The simplest, the most powerful, and the most efficient of these is what I may call county or district rotation of cropping. Farmers know well enough the advantage of a rotation of a cropping (or its equivalent) on their own farms. By long-continued growth of the same crop on the same land the soil becomes exhausted of some of the elements necessary for the proper development of that kind of crop, and a change of crop brings other elements into use, and relaxes the demand upon those that have been too much drawn upon. Exactly the converse of this takes place with regard to certain insects. The great majority of vegetable-feeding insects do not feed on all kinds of plants indiscriminately; most of them are restricted to one kind of plant, and if by cultivation of that plant its numbers are enormously increased, so will naturally be the number of the insects that feed upon it, while, if we should cease to grow that plant, the number of the insects would correspondingly diminish. Thus, for instance, if a district be almost entirely in pasture, there will be very few Wheat-feeding insects in it, but if it be turned into a Wheat country, they will be in myriads. If these numbers reach such a pitch as to deteriorate the crops, the remedy is plain. Change the rotation, and grow some other crop instead of Wheat. Allow me to illustrate this by an actual example. Last summer I spent the month of July at Broadstairs. In my rambles about the place I was immediately struck with the Wheat crops. At a little distance they looked tall and strong, but on examining the ears I found them only about three-quarters filled. The blade or leaf was throughout almost entirely white and dry, and I have no doubt that if I had asked any farmer what was the cause of the poor ears, he would have said drought, as shown by the bleached and dried-up leaves. And if his assumption that the bleaching of the leaves was due to drought had been true, his conclusion would have been quite right. It was the deficient action of the leaf that stayed the flow of nutriment to the ear. No fear of the farmer making any mistake upon this point. He, at least, is perfectly alive to the fact that if you want a good crop of any kind, you must have abundant and healthy foliage. Try to grow any plant, and see what kind of crop you will have if you constantly deprive it of its leaves. But although he would be quite right in describing the deficiency of weight in the ear to the failure of the leaf, he would in this instance have been wrong in ascribing the failure of the leaf to drought. It was due to the mining of the larva of a small fly named *Agromyza graminis*, which lays its eggs under the skin of the leaf at its tip. From thence the young larvæ mine downwards, feeding on the parenchyma of the leaf, leaving nothing behind them but the empty husk, consisting of the upper and under walls of the leaf. If the leaf be small, they entirely consume the interior; if large, they may not reach entirely to the bottom of it, but will have consumed about three-fourths of it before

they pass into the pupa state. Now, of course, I cannot tell what amount of damage this insect did. Had I guessed that I was likely to be now reading a paper about it, I would have got the ears dried and weighed, and endeavoured to give chapter and verse for a specified proportion. But not having done so, all that I can do is to leave those who are familiar with the subject to work it out for themselves, merely premising that almost every blade in the whole district seemed attacked. Still, for the purpose of my next point it is necessary for me to make some estimate of the proportion of loss. I have said that the ears seemed only three-quarters filled. They continued so until reaped. Let us suppose that this is too much by half, and take an eighth. This would give a loss of upwards of 12 per cent. on the grain crop, and to make the margin still wider, and the figures more manageable, let us reduce it to 10 per cent. The actual percentage of loss is not of much consequence, if I can satisfy you that it was considerable, and my object is less to show the amount lost, than where it falls.

Now we all know that the total yearly produce of a farm has to be distributed between three accounts—one is in repayment of the cost of cultivation; another is in payment of rent; and the third is the tenant's profit. It is plain that no reduction can be got either from the expenses of cultivation or the rent on account of this insect damage. The tenant or cultivator has to lose the whole of it, and you will also see that although the loss on the whole crop may only be 10 per cent., that is by no means the percentage of the loss on his profit. If, for example, we suppose that the tenant's profit on the entire produce is one-third, and that the total gross produce of the Wheat crop was £500, 10 per cent. loss on that is £50; but 10 per cent. loss on the tenant's profit would only be £16, whereas a deduction of the whole £50 would be equivalent to upwards of 30 per cent. You will thus see that this in its present stage is entirely a cultivator's question. The landlord (not a cultivator) has only a prospective interest. If arrangements could be made by which such insect damage could be annihilated, no doubt as leases terminated a readjustment of rent suited to the improved production would take place; but in the meantime it is the tenant who suffers, and who will be first benefited by stamping out such insects. Now a change of crop, if carried out over a sufficiently wide district, supplies an easy and effectual cure for the attacks of this insect. Its habits lend themselves to such a remedy. It feeds only on Wheat and a few allied pasture Grasses. At Broadstairs there were crops of Barley and crops of Wheat growing side by side, the only separation between them being a footpath, not 2 ft. in width, running through the field; and while, as I have said, every Wheat blade was ruined, I could not find one touched on the Barley. Furthermore, the insect is only an annual. If it could be banished for one year, it would be banished entirely, or until reintroduced. Now if there were a controlling authority in that district, what would be easier than to say to the farmers, "Gentlemen, in the common interest you will substitute Barley for Wheat in your next year's rotation?" The fly, deprived of its proper nidus, must then either lay its eggs in an unsuitable place where they will perish, or have recourse to the pasture fields for *Triticum repens*, or other suitable Grasses. By this, of course, the fly would not be exterminated, but its numbers would be so reduced as to render it comparatively harmless, at all events for a time, when, if it reappeared in force, the same means of defence could be again resorted to. Nay, it might be so arranged that two or more counties might brigade themselves together, so as to establish a permanent see-saw by which they should play into each other's hands. But you will observe that no single man can carry out such a rotation. He might try it upon his own fields, but they will be replenished continually from the fields of his neighbours, unless they at the same time are compelled to follow the same rotation. It is, therefore, for cultivators who know the respective capabilities of soils, and the relative returns of Wheat and Barley, to say whether they would prefer to suffer a heavy yearly percentage of loss, or to submit to the substitution of Barley or some other crop instead of Wheat for a single year. Before leaving this point let me remind the meeting that the plan of excluding for a year a particular crop from the cultivation of a district will apply to almost every crop that is grown, whenever the insect is one that does not live over one year, and this includes by far the greater number of injurious insects. The next means of extirpation to which I shall advert is burning the nidus, in which the insect, in whatever stage, passes the winter. We want some one to compel the burning of the heaps of Couch Grass and weeds gathered from foul land, instead of keeping them to rot into manure. These are the focus and shelter-place of wireworms and other pests, and contribute largely to their spread. To the same class of remedies belongs the local treatment which I recommend for the Onion fly. The plants attacked are readily distinguishable from those that have escaped—the former are sickly, flaccid, and yellow, the latter firm,

erect, and green, and those attacked can easily be picked out and burned. If these be destroyed, the whole future family is annihilated. The Carrot plants attacked by the Carrot fly are equally easily distinguished and destroyed, but it is not certain that the grubs in them keep always to the same root. But both with them and similarly destructive insects that infest the Cabbage and Turnip, a year's avoidance of that crop throughout the district will relieve it from them. Next comes the remedy, in the shape of some application that is fatal to insects. This plan is adopted in America for the destruction of the Colorado beetle, where Paris green is dusted in powder or sprinkled in solution over the larvae on the Potato plants. It is the plan used by our horticulturists to get rid of the red spider in their hothouses, where sulphur is the medium. Manufactured into Gishurst Compound, or made up into some soapy solution, sulphur is also largely used by them to destroy green fly. Sulphur has also been successfully used on a small scale against the Hop fly, and might be advantageously used on a large scale. There are various other supposed specifics (such as hellebore for the Gooseberry caterpillar, &c.) which are more or less in favour with different individuals. As a remedy, however, such applications seem better adapted for individual protection than combined stamping out, although it would be foolish to forego the advantage of using them where they seem to meet the requirements of any special case.

The following resolutions were carried:—1. That thanks are due to the President and Lords of the Council for having brought the subject of insect damage under the consideration of the agricultural bodies of the kingdom. 2. That much of the loss occasioned by insects is preventable, and ought to be prevented. 3. That it properly belongs to Government to provide the necessary means for protecting cultivators from this loss, as it is only by combined and simultaneous action over considerable districts that it can be effectually done, and Government alone possesses or can obtain the requisite means of enforcing such action. 4. That the President and Lords of the Council and the different agricultural societies throughout the kingdom be informed of the opinion of this Conference, and urged to take the subject at once into their consideration, with a view of providing a remedy.

In the course of the discussion which ensued reference was made to the Acts passed in Missouri, Kansas, and Minnesota last March, and there were several expressions of hope that they would be published in some form in this country for guidance. The Acts are given in full in the ninth annual report of the State entomologist for Missouri, and published at Jefferson City by the State printers. The Missouri Act is entitled "An Act to Encourage the Destruction of Grasshoppers." It enacts that a bounty of 5 dols. a bushel for eggs before they are hatched, or (Section 2) 1 dol. a bushel for young during March, 50 cents. during April, and 25 cents. during May, shall be paid to any person who shall gather them or cause them to be gathered. One half of the bounty shall be paid by the State and the other half by the county in which they are collected. The other sections of the Act have reference to the official reception and measuring, and forms for claiming the bounty. The main feature of the Kansas Act is that it applies to all migratory insects, and gives power to the township trustees to warn out all able-bodied males between the ages of twelve and fifty for the purpose of destroying the insects, under such direction and in such way as may seem best to the road overseers, the fine for failing to comply with the orders being 3 dols. a day. All persons over eighteen may be exempt from personal duty on paying 1 dol. a day. In another Act arrangements are made for united action through whole Senatorial districts. The Minnesota Act both enacts bounties, as in the case of the Missouri Act, and also compulsory action or fine, as in the Kansas Act.

Transplanting Young Vegetables.—I am not inclined, like your correspondent "A Northern Gardener" (see p. 431), to discontinue the practice of transplanting young vegetables from the seed-bed into another, for if the plants gain nothing by it they lose nothing. When transplants they will certainly obtain greater size and vigour by the time that they are required to be finally planted out; and, if distressed, they can be moved to where they are to be grown even in dry weather, with a larger amount of roots attached to them than when allowed to remain in the seed-bed until planting time. By transplanting, too, more time is given for clearing previous crops off the ground, which they occupy no slight advantage, especially as regards small gardens.—J. W. Llanestfan.

Blighted Pelargoniums.—All my Pelargoniums this year that have either red or pink in the petals seem to be infected with a peculiar sort of blight. Directly the flower is fully blown, spots appear, taking out all the red colouring matter from the petals, leaving a blue shade, and in a few hours the whole flower turns brown, and goes off as though it had been wetted. The white and purple Pelargoniums escape. The blooms are unusually large and fine, and the plants very healthy and free from green fly. Several people in the neighbourhood have made the same complaint about their Pelargoniums. Can any one state the cause or suggest a cure?—A. Subscriber, St. Leonard-on-Sea.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY'S SHOW.

JUNE 5.

This show, like the last, was only a small one, but the exhibits were of an unusually interesting character, especially the groups of Orchids of which the show was chiefly composed.

First-class Certificates.—These were awarded to the following new and rare plants:—

Cattleya Skinneri alba (Veitch).—A pure white-flowered form of the well-known *C. Skinneri*, with much the same habit and floriferous qualities.

Odontoglossum Alexandræ roseum (Ollerhead).—A variety with rather small but perfectly formed flowers, the lower petals of which are of a delicate rosy-lilac colour.

Aquilegia hybrida cœrulea (Douglas).—The flowers of this resemble those of the well-known *A. cœrulea*, but they are larger and of better substance; it promises to be an excellent garden variety.

Aquilegia hybrida californica (Douglas).—This has reddish-petalled, creamy-centred flowers, which are produced in abundance, and are very showy.

Pelargonium, Virgin Queen (Turner).—A show variety with large trusses of white flowers, the upper petals of which are slightly marked with rosy-purple.

Pelargonium, Venus (Turner).—A very dwarf-habited, white-flowered kind admirably adapted for decorative purposes.

Pelargonium, Mr. King (Turner).—A good habited variety, with large trusses of flowers, which have rich purplish-crimson petals and clear white centre.

Pelargonium, Eloquence (Turner).—This has rich, dark velvety flowers, the lower petals of which are bright crimson, and the centre creamy-yellow.

Pelargonium, Tom Bowling (Burley).—A Zonal raised by Mr. Postans, bearing fine trusses of soft orange-coloured blossoms of large size; well worth cultivation.

Begonia, Gloire de Nancy (Laing).—A dwarf variety having bright orange-scarlet flowers, which are double, and produced in abundance, even on small plants.

Miscellaneous Plants.—Messrs. Veitch & Sons exhibited a group of choice Orchids, amongst which we remarked finely-flowered plants of *Cattleya Mossie*, *Odontoglossum nevium*, *Saccobolium unipulacum*, a fine variety of the showy yellow-flowered *Oncidium concolor*, and the new white-flowered form of *Cattleya Skinneri*. From the same firm also came a collection of thirteen varieties of *Masdevallia*, including all the best-known kinds, as well as a few others, chiefly of botanical interest. For these a silver medal was awarded. An excellent group of Orchids also came from Mr. Ollerhead, gardener to Sir H. Peck, Bart., Wimbledon House; in this we noticed well-flowered plants of *Dendrobium giganteum*, *Odontoglossum citrosimum*, *Lælia purpurata*; a neat little plant of *Saccobolium retusum*, bearing two long, graceful spikes, thickly beset with richly-coloured, delicately-scented blossoms; and *Dendrobium amœnum*, furnished with from fifteen to twenty flower-spikes. For these a silver medal was awarded. Mr. Willis likewise showed a well-arranged group of Orchids and Ferns, intermixed. Amongst the Orchids were good examples of *Odontoglossum Alexandræ*, *Cypripedium barbatum*, and several choice varieties of *Cattleyas*. It also contained a specimen of *Anthurium Scherzerianum*, bearing over twenty large and brightly-coloured spathes. Mr. Loveland, gardener to J. G. Hepburn, Esq., Sideup, showed a group of Orchids, amongst which were excellent examples of *Odontoglossum vexillarium*. A large plant of *Anguloa Clowesi*, bearing upwards of a score of large yellow, cup-shaped blossoms, and an *Oncidium crispum*, furnished with a long branching spike, on which were nearly fifty flowers. The same exhibitor showed a few plants of the brilliant *Epidendrum vitellinum majus* in good condition, for which and the rest of the collection a silver medal was awarded. Mr. Charles Turner, Slough, showed a collection of Show and Fancy *Pelargoniums*, to the best of which allusion has already been made. Mr. Burley exhibited a group of Zonal and Variegated-leaved *Pelargoniums*, amongst which were several kinds of a meritorious character. Amongst variegated varieties the most noticeable were Mrs. J. C. Quonell, a free-growing kind, with silver-edged leaves and bright pink blossoms, and a double white-flowered sort named *Belle of the Ball*. *Azalea indica imbricata* came from Messrs. Veitch & Sons; its flowers, which are double white slightly striped with pink, closely resemble blossoms of a well-grown Balsam. Mr. B. S. Williams, Holloway, had a new Show *Pelargonium* named *Dr. Masters*, with dark, semi-double flowers, well adapted for cutting purposes. Mr. Turner showed a large, purple-flowered single *Petunia* named *Mount Beauty*, which, on account of its vigorous habit of growth and large flowers, will doubtless be much grown for covering tree stumps or heaps of stones during summer. *Juniperus virginiana variegata*, shown by Mr. E. Holmes, Whittington Nursery, Lichfield, promises to be a valuable addition to hardy Conifers. Mr. Kinghorn contributed six seedling *Gloxinias*, all distinct and worth a place in every collection. For cut blooms of *Isias*, arranged in bottles placed amongst small plants of *Pteris serrulata*, shown by Messrs. Barr & Sugden, of Covent Garden, a bronze medal was awarded. Blooms of *La France Rose* in good condition came from Mr. Iggulden,

garden to R. B. W. Baker, Esq., Ossott Hall, Essex; and Mr. Loring had cut blooms of *Prince of Orange* Plantice, large and fine. Mr. D. had exhibited large trusses of the scarlet and white Brompton Stocks, and also some flowers of *Tropæolum* and *Mimulus*. The Rev. A. Rawson sent two kinds of *Calochortus*, both of which attracted much attention.

Fruit and Vegetables.—Some good Strawberries came from Mr. Cadge, Tring Park; and Mr. Gilbert, Burghley, sent a green-flesh Melon, named *Victory of Bath*, which had a very thin, netted skin, and flesh possessing good flavour. A dish of very large, clean-looking fruit of Hathaway's Excelsior Tomato was shown by Mr. Iggulden, and was deservedly awarded a cultural commendation. Messrs. Carter & Co. contributed good heads of their Late Silverhead Broccoli; and medium-sized heads of a very white and compact Broccoli came from Mr. Gough, The Gardens, Westwood Park. A bunch of fasciated Cucumbers, four in number, from a single joint, came from Mr. F. Swanick, Whittington House.

Royal Horticultural Society's Provincial Show of 1878.—It has been decided by the Council of the Royal Horticultural Society that a great Provincial Horticultural Show shall be held in June next year, at Preston, in Lancashire, and we are informed that the needful guarantees have been secured. Mr. T. M. Shuttleworth, of Howick House, Preston, has undertaken the office of local secretary.

Royal National Tulip Society.—The annual exhibition promoted by the Royal National Tulip Society was held the other day at the Botanical Gardens, Old Trafford. The exhibition was originally announced for Whit-Friday, but a backward season made it necessary to postpone the show. About £60 was offered in prizes, and the list had attracted a large number of exhibitors. The Tulips were well arranged on a table running down the centre of the permanent exhibition house, and made a very pretty show, although an unfavourable season has left patent defects upon many of the specimens. The following is the list of the principal awards:—**Rectified Tulips**—Five stands of twelve dissimilar Tulips, 1, Mr. Whittaker, Salford; eight stands of six dissimilar Tulips, one feathered and one flamed, in each class, 1, Mr. Charles Forman, Chellaston; four stands of six dissimilar Tulips, one feathered and one flamed in each, 1, Mr. H. Housley, Stockport; six stands of three feathered Tulips, one of each class, 1, Mr. W. Whittaker; six stands of three flamed Tulips, one of each class, 1, Mr. J. Thurston, Wolverhampton; four stands of two Tulips, one feathered and one flamed, of any class, for maiden growers only, 1, Mr. H. Hill, Nottingham; six stands of two Tulips, one feathered and one flamed, of any class, 1, Mr. Whittaker; single bloom in each of the six classes, feathered Bizarres, Roses, and Byblœmens, flamed Bizarres, Roses, and Byblœmens, 1, Mr. Housley; feathered Byblœmens, 1, Mr. Whittaker; feathered Roses, 1, Mr. H. Housley; flamed Bizarres, 1, Mr. J. Turner, Stockport; flamed Byblœmens, 1, Mr. Whittaker; flamed Roses, 1, Mr. D. Woolley, Stockport; best feathered Tulip and the best flamed Tulip in the exhibition—flamed Tulip, Mr. Forman; feathered ditto, Mr. D. Barber. **Breeder Tulips**—Six stands of dissimilar Tulips, two of each class, 1, Mr. S. Barlow, Chadderton; eight stands of three Tulips, two of each class, 1, Mr. Thomas Haynes, Derby; single bloom in each of the three classes, Bizarres, Roses, and Byblœmens—Roses, 1, Mr. S. Barlow; Bizarres, 1, Mr. Barber; Byblœmens, 1, Mr. Haynes; best breeder Tulip of any class in the exhibition, Mr. S. Barlow.

QUESTIONS AND ANSWERS.

Dewdrops on Vine Leaves.—The dewdrops on Vine leaves spoken of (see p. 140) are the natural exudations of the leaves, caused by a cool, moist, confined atmosphere, which in dull weather is apt to induce damp. Ventilating freely, and at the same time using a little fire-heat in cold weather, will dissipate the moisture.—J. SMITH.

Hardy Early Pink and Purple-flowering Bedding Plants.—I should like to know of a really good bedding pink flower for spring blooming. The *Sidenes* and *Saponarias* are too late in flowering, being only just now in perfection, when the beds should be filled with their summer occupants, and pink *Daisies* seem inferior bedders compare I with the red and white. Would any of your readers name also an early-blooming purple Pansy suitable for spring beds?—M. S. H.

Bletting in Grapes.—I have some *Madresfield* Court Grapes, many of the berries of which have suddenly gone off as if scalded, although the Vine is remarkably healthy, some of the leaves measuring as much as 15 in diameter; the Vine is in a small house with Black Hamburg, Sweetwater, and Lady Downe's Seedling, none of which show any such symptoms. The temperature has been well kept up—65° in the night and 75° or 8° in the daytime. The berries, where bletted, have a dull yellow hue, and the skin and matter immediately under it are evidently dead. For any information which your readers can give me on the subject I shall feel extremely obliged.—G. E.

Treatment of Azaleas after flowering.—My Chinese *Azaleas* have now done flowering, and I wish to place them in the best positions for making vigorous new wood—the climate here is mild and the situation well sheltered from harsh weather. At present they are under glass, some in a Peach-house and others in a Vinery, both under the shade of foliage. I however, prefer the open air. Will you kindly inform me which place you consider best for the next four months?—CORK EXTRACTOR. [Keep them under glass till they have made their young wood; then turn them out-of-doors to ripen it, shading them from direct sunshine.]

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES OF THE WEEK.

THE GARDENS AT SOUTH KENSINGTON.—These are improving in aspect a good deal. Mr. Barron has made sundry changes, mainly in the way of removing the many angularities and geometrical puzzles with which the garden was at first "adorned." It is an instructive fact, in relation to the opinion concerning this garden often clearly made in our pages, that every change towards simplicity of details, every abolition of any of those whimsical old resurrections which were so very fashionable a dozen years ago has been a decided improvement. In many gardens great improvements may be made at trifling expense by the mere removal of puerile geometry, needless banks and terraces, stone-work out of place, coloured gravels, &c.

DWARF PHLOXES.—The little Phlox, which we figure this week, is one of the Rev. J. G. Nelson's seedlings. His father raised the well-known P. Nelsoni. We believe this to be not a hybrid, but a variety of P. subulata. It is probable that we shall some day have a race of these small Phloxes, as brilliant in their way as the large varieties that now grace our gardens in autumn. The kinds already raised by Mr. Nelson from P. subulata will, we hope, be increased and distributed in gardens generally.

A LILY BED.—There is now coming into flower in the grounds of the New Plant and Bulb Company, at Colchester, a bed containing five thousand plants of the handsome *Lilium Szovitzianum* figured in THE GARDEN, vol. ix., p. 201. This fact speaks eloquently of the progress made in the culture of hardy flowers within the past few years. Twelve years ago, in the height of the bedding-out fever, there was not a Lily to be seen in cultivation out-of-doors about London, even the old white Lily having been thrown away on the old rubbish-heaps to make room for the "Tom Thumbs" and "Calcies" of the period.

PRIMUMA GRANDIS.—The new Caucasian Primrose, which bears this high-sounding name, is now in bloom in the nurseries of Messrs. J. Backhouse & Son, at York. It is, so far as the flowers are concerned, the poorest of the entire genus yet seen, not to be compared for a moment with the poorest Cowslip. The flowers are borne in clusters, and are pendent and pale yellow; petals very narrow, deeply lobed, and so small that an observer, without close inspection, would never imagine that the plant was in flower at all. The foliage is ample, and to this circumstance, and perhaps the height of the flower-stem and the number of the pigmy blossoms, must the name "grandis" be attributed! Truly "all is not gold that glitters."—P.

ODONTOGLOSSUM VENTILLARIUM.—A plant of this lovely Orchid, in Mr. Williams's nursery, Holloway, is now furnished with from eight to ten long, gracefully drooping flower-spikes, each of which is laden with delicate rose-coloured blossoms of unusually large size. There are in all on this plant, which is growing in a 7-in. pot, nearly fifty blooms and buds. Plants possessing such floriferous qualities as this, and producing such magnificent blooms, cannot be too highly prized or too extensively cultivated, and when we consider that it thrives best in a cool house its value becomes greatly enhanced. —C. S.

HARDY FLOWERS IN THE BOTANIC GARDENS, BIRMINGHAM.—I was very glad to see the Moccasin-flower (*Cypripedium spectabile*) in bloom a few days ago in the Botanical Gardens, Birmingham, and though not so highly coloured as the specimen figured in THE GARDEN (see p. 254), yet the plants were well grown and the blooms of considerable size. Among other plants in bloom, the most noticeable were *Erodium absinthifolium*, *Veronica prostrata*, and *Delphinium nudicaule*. A bed of white Talips, intermixed with Forget-me-nots, likewise looked exceedingly pretty, and there was also a pure white variety of *Camassia esculenta* in flower in this garden, where, according to Mr. Latham, the curator, it has been grown for many years.—J. TREVOR.

NYMPHÆA PYGMÆA.—In your last number (see p. 471) you allude to *Nymphæa odorata*. It is many years since I have grown it or seen it, but my recollection of it is that the foliage is nearly as large as that of our native N. alba, and therefore not well adapted for growth in small suburban gardens. N. pygmæa, on the contrary, is a perfect little gem. I have an example of it in an earthenware pan, about 1 ft. in diameter and 7 in. deep, which flowers continuously from April until October, when, for convenience sake, its supply of water is reduced and the pan placed under the stage of a cool greenhouse. It always attracts the attention and admiration of all my

lady friends. There are two other plants which I much admire, but have never tried them in confined spaces, viz., *Limnorchis Hamboldti* and *Hydrocharis morsus-ranae*, the last a native plant. I also remember a friend who used to grow N. cœrulea in 4½-in. pots plunged in earthenware pans.—JOHN E. DANIEL, *The Terrace, Epsom.*

ROSE DE MEAUX.—This small Rose is now brought in small bunches in abundances to Covent Garden, where it is very pretty and very welcome. It is grown by the market gardeners.

A ROSE-COLOURED ERYTHRONIUM GIGANTEUM.—This has recently been in flower in the Edinburgh Botanic Garden. It is described to us as being in all ways like the dull yellow form, except in being a bright rose colour. It will probably prove one of the most attractive of recent additions to our choice hardy flowers.

ARBUTUS MENZIESI.—A fine specimen of this scarce North American shrub is now in flower in the York nurseries. It measures from 15 ft. to 20 ft. across, and nearly the same in height. As a hardy evergreen it is a striking and ornamental tree. The bark is deciduous; the flowers (white wax bells) are borne in dense, erect, branching, terminal clusters.—R. T.

SEEDLING ABUTILONS.—Mr. B. S. Williams, of the Victoria Nurseries, Holloway, has sent us cut flowers of two new seedling Abutilons, both of which promise to be valuable for conservatory decoration. They are said to be dwarf in habit; one, named Orange Prince, bears bright orange-red blossoms; the other, which is called Roseborum, bears flowers of a rosy-pink or salmon colour, and its bells are shorter than those of the other. These two seedlings will be found to be excellent additions to existing kinds.—S.

BROWNEA COCCINEA.—The lion of the large plant stove at Glasnevin just now is, unquestionably, this magnificent flowering shrub. We do not remember before seeing it flowering so freely, or its great, dazzling floral tassels so large and fine as they are this season. At an earlier period the specimen of B. grandiceps in the same house was also particularly showy.—B.

MASDEVALLIAS.—These are destined to effect a great change for the better in both Orchid-houses and flower-shows, judging by the beautiful and most distinct effect of a plant shown at the Royal Botanic Society's exhibition the other day by Sir Trevor Lawrence. The wondrous charm of colour and absolute novelty in form were in this case supplemented by a showy head of bloom 18 in. in diameter. When other kinds are shown in the shape of equally fine specimens, they will add a splendid change to groups of Orchids.

COCHLIOSTEMA JACOBIANUM.—A fine specimen of this plant in Mr. Williams' nursery at Holloway is now bearing ten or twelve large branching flower-spikes, each of which is furnished with numerous flowers and buds. The blossoms, which are soft velvety-purple in colour, are produced in succession for a long time, and contrast effectively with the pale salmon-coloured stalks and the broad, deep green, Agave-like foliage. This, though as yet by no means common, well deserves a place in every collection of stove plants. At Kew it has also been in flower for many weeks.

RARE HARDY FLOWERS AT COLCHESTER.—There is now a most interesting collection of hardy plants in bloom in the grounds of the New Plant and Bulb Company, at Colchester. Among them may be mentioned many of the hardy Lady's-slippers (*Cypripedium*) of North America; several of the beautiful *Calochortus* (*Mariposa Lilies*), from the sunny plains and hills of California; the white *Brodiaea*, from the same country; the beautiful little scarlet Lilies, called *Lilium tenuifolium*, *L. pulchellum*, and various other interesting plants. This and other facts speak much for what has been done for hardy plants at Colchester.

DIPLADENIAS AND IXORAS.—A fine display of *Ixoras* may now be seen in the Holloway nurseries. The plants consist of numerous varieties, even the smallest of which is laden with large trusses of blossoms. In the same house *Dipladenia hybrida* and amœna trained under the roof are flowering freely, and their large rose and white blossoms form an effective contrast with the golden, yellow, and orange-coloured flowers of the *Ixoras*. The greatest drawback belonging to both these beautiful spring and summer-flowering plants is that they require a considerable amount of heat during cold weather in order to grow them successfully. Happily, however, new kinds of equal excellence are being raised that will no doubt eventually succeed perfectly in a much cooler temperature.—S.

NEW PLANTS AT SOUTH KENSINGTON.—Mr. Charles Turner informs us that he intends sending a large collection of new *Pelargoniums* to the exhibition to be held at South Kensington on Tuesday next, the 19th inst. Mr. Wills also intends to show the whole of his new *Dracenas* on that occasion.

IBERIS PETREA.—This new perennial Candytuft, introduced about two years ago by Messrs. Backhouse, is now in full flower on the rockwork at York. It is a pretty little Alpine plant of very dwarf and tufted habit; the flower-heads are very nearly as large as those of the well-known *Iberis correæfolia*, while the whole plant is under 3 in

n height. Its great charm and distinguishing feature lies in its having rose or rose-chocolate coloured buds, which, when surrounded by the fully expanded pure white flowers, give the whole taut a pleasing effect. It thrives best when planted in well-drained but good-bodied, rather stiff loam, intermingled with small pieces of stones.—R. P.

The Fruit Crop in Kent.—With the exception of some few particular sorts the fruit crop in this district may almost be called a failure. Of early Cherries we have none, but regarding later kinds belonging to the Morello class, such as Kentish, Flemish, and Dutch Morello, prospects are more promising. Pears are nearly a blank, and the same may be said of early Plums; other kinds, including Daxsons, are very thin. Nuts promise at present to produce good crops. Apples were covered with bloom, but whether fruit will be forthcoming in proportion remains to be seen. Currants of all sorts are a heavy crop; amongst black kinds the Naples is superior to other varieties, and a heavy crop, a circumstance greatly in its favour after such a critical season as the past. Gooseberries are a good crop, with the exception of the yellow kinds, which have shed their fruit very much. Raspberries and Strawberries are blooming well, but look weakly, owing to wet and cold and absence of sunshine. Peaches and Nectarines are thin, the best are under a wide coping; other trees, not so situated, are much affected with curl and mildew. Hardy Grapes look promising, and Figs, both on walls and standards, are producing a heavy crop. Since the foregoing was written I have again examined the Apple crop, and I find that most of the fruit fall on the slightest touch; the foliage is also being shed through blight and maggot; therefore there is no chance of a full crop being harvested.—W. DYERS, *Wierton, near Maidstone.*

Fruit Prospects in Suffolk.—The wreck of the fruit crops in the eastern counties may now be said to be complete, for the Apples have followed in the wake of the Peaches, Apricots, and Plums, and all are rendered fruitless for the season. Of course there are exceptions here and there, but they merely confirm the rule, and the rule is—no superior fruit for the year 1877. The loss of the Apple crop seems a mystery to the majority of fruit cultivators. The trees flowered abnormally late, and, as I remarked on a former occasion, the blossoms seemed abnormally pale; but beyond this there was little to excite suspicion or distrust as regards the produce. Court Pendu Plat and Scarlet Nonpareil are now (June 12) in full flower; whether they will set and produce fairly abundant crops remains to be seen. Gooseberries, Currants, and Cherries are also destroyed in many localities. Walnuts are only just now coming into flower, and their extreme lateness may possibly save them, but even this is doubtful. Altogether our fruit prospects out-of-doors have not been so dreary for years past. Figs, however, seem more promising; all the earlier varieties are totally destroyed, but the later sorts are more satisfactory and promise an abundance of fruit, which this season will prove most welcome.—D. T. FISU, *Bury St. Edmunds.*

Pink and Purple Hardy Bedding Plants (see p. 492).—I can recommend nothing better or more effective as hardy pink-flowered bedding plants than the two double Daisies, Early Gem and Ranunculiflora, both of which are equal in habit and freedom of bloom to the red and white kinds. Early Gem is a large-quilled flower, the outside of the petals red and the inside white; these blending cause it to assume a bright rosy-pink hue when seen in a mass. Ranunculiflora has flat-petalled flowers slightly incurved, the back part of the petals red and the inside white; this is a robust-growing kind, and when in full bloom gives a very pleasing hue of bright pink. Earlier than these are pale red Primroses, but this particular hue is the least effective of all the coloured varieties. *Arabis rosea* is also of a pale tint, but, although free, does not produce an effective mass. It is unfortunate that we have a paucity of hardy plants suitable for bedding of the particular hue wanted. This remark also applies to purple flowers, of which we have nothing useful earlier than Pansies and Violas, and of these purple hues are the latest. The finest coloured bedding Viola of a rich purple is Mulberry, but it is a summer kind. The next best is the Terry, but this comes nearer to blue, yet so dark that it is more properly described as purple than blue. This is one of the earliest varieties, and makes a very effective spring bedding plant. The old purple Cliveden variety is still one of the earliest of the dark-flowered sorts, and one of the best. The period of flowering of Pansies and Violas is regulated by the strength of the plants, which should be got out in November to make an early spring mass of colour.—A. DEAN.

Tea Rose Exhibitions.—If we compare a grand stand of Tea Roses with one of Hybrid Perpetuals, we are struck with three peculiarities as regards the former. First, the prevalence of yellow, light and bewitching half tints in the Teas; secondly, their large, graceful,

wax-like petals, not quite so compact and symmetrical as the Perpetuals, but more artistic and picturesque in outline; and lastly, their refined and peculiar fragrance. Now to bring out these points to the greatest advantage by contrast of form and colour, also the waxy petal of the Tea with the velvet shading of the Hybrid Perpetual, as in Charles Lefebvre, Duke of Wellington, &c., would it not be well at the National Rose Show and other societies to offer some good prizes? They might, I think, be specified as follows:—For nurserymen—A stand of 24 trebles, consisting of 12 Teas and Noisettes, 12 Hybrid Perpetuals and Hybrids, three trusses of each in different stages of development, these Teas and Perpetuals to be contrasted and arranged alternately. For amateurs—A stand of 24 singles, half Teas and half Perpetuals, arranged in like manner, a Tea and a Perpetual alternately. This would ensure the brightest and most attractive stand of flowers, and be appreciated alike by Rosarians in general and Tea Rosarians. Tea Roses should not be judged by so severe a test as Hybrid Perpetuals, but while many, like Niphotes, Madame Hippolyte Jamin, and others, throw their large beautiful petals often beyond the circular line of the florist, it is indispensable for perfection that these should have high, full centres. Since writing the above I am happy to state that the Hon. and Rev. J. T. Boscawen has kindly offered to test the merits of the above suggestion by offering, as at Bath, two ten-guinea cups at the Oxford Rose Show for stands of alternate Teas and Hybrid Perpetuals; an attractive feature might be added by offering a prize for stands of the best-tinted Tea Roses, 12 blooms in variety, such as Jean Ducher, Comtesse de Nadailac, Marie Van Houtte, Homer, &c., size not to be of primary importance; this would encourage the production of these richest gems belonging to the Rose family.—H. CURTIS, *Torquay.*

Trophy Tomato.—Although the fruit of this kind resembles that of the well-known Hathaway's Excelsior when of medium size, yet when very large it assumes a coarse, irregular appearance around the pip, and on account of this well-known feature I am induced to believe that the dish of exceedingly fine fruit shown at South Kensington on the 5th inst. by Mr. Iggalden, was Trophy and not Excelsior, as in the larger fruit this feature was specially developed, whilst in the largest fruit of Excelsior this characteristic is rarely seen. I prefer Excelsior to all others, not only because it is the most productive, but also because the fruit is of good size, rich in colour, and exceedingly handsome. We only want a brisk flavour thrown into it to make it one of the best of all Tomatoes.—A. D.

Covering Early Vine Borders.—We have six early Vineries here, four of which we clear of fruit as nearly as we can by May 31; three are devoted to Black Hamburgs and one to Muscats, each being from 50 ft. to 56 ft. long; the borders are partly in and partly outside; those outside are merely protected with from 6 in. to 8 in. of dry litter (leaves where they can be had being better), and covered with wooden shutters. We commence cutting Black Hamburgs the last week in March, and Muscats the first week in May. This treatment has been carried out during these last eight seasons, and although the bunches are not so large as they were three or four years ago, still I find the comparative weight this season to be a match for that obtained in past years.—JAMES SMITH, *Waterdale.*

Grapes Bletting.—If "C. E." (see p. 492) give a little air early in the morning—say by six o'clock—or better still, leave a little on all night now the nights are warm, and allow the laterals more freedom of growth, so as to produce a little more shade over the bunches, he will find that the bletting or scalding will cease. A thin shade over the glass would be a good plan to adopt until the foliage is thicker. I have a Madresfield Court Vine here with several fruiting rods, one being trained within a few inches of the west end of the house; and about three o'clock in the afternoon, when the sun shines full upon the end of the house, I always find it necessary to shade the bunches that hang near the end glass from early in June until they are ripe, because this being a long-bunched Grape, the foliage on the roof, no matter how dense it may be, does not shade the end rod from the sun's rays when they strike obliquely against the end of the house, which they do with considerable force early in the afternoon. A narrow strip of hexagon netting will answer the purpose; or a little thin whitewash rubbed on with a brush will last the season. The Madresfield Court and Lady Downes are more subject to scalding than other kinds.—E. HORDAY.

James Veitch Strawberry.—Our late forced Strawberries have been very fine this year, especially this variety. It throws its broad trusses of flower well up above the foliage, and bears a good crop of exceptionally well coloured and finely flavoured fruits, the largest being generally of a cockscomb shape. It is also a firm fruit when ripe, and well adapted for packing, which is a great advantage. Early forced Strawberries this year did not as a rule produce crops proportionate to the size and strength of the plants, but late successional sorts have been excellent, and James Veitch above the average as regards size and quality.—JAMES GROOM, *Henham.*

TREES AND SHRUBS.

THE CUT-LEAVED WALNUT.

FREQUENTLY it happens that what may be called, from a botanical point of view, a mere variety, is of as great an importance for our gardens as the most distinct of species. In gardening the question of form is second to no other, and frequently valuable deviations from ordinary forms characterise what are called mere varieties. Thus such varieties of hardy native trees as the Weeping Wych Elm and the Weeping Beech, are more precious for the garden landscape than most new species of hardy trees; this must be clear to all who have seen these varieties in a mature state. We are, indeed, only in the beginning of our due appreciation of the value of the varieties as distinguished from the original forms of hardy trees. All interested in trees would do well to observe accidental deviations from the normal type in gardens under their care. A stray shoot or sucker showing a habit different from the type may, if separated and increased, perpetuate constantly its peculiarity. He who observes and increases it may render as great a service to the gardens of Europe as was rendered by those who secured for us the Upright Yew or the Weeping Ash. These remarks occur to us in connection with some varieties of the common Walnut as yet little known. The Cut-leaved Walnut, the subject of our sketch, merits the attention of all caring about ornamental hardy trees. The Weeping Walnut is also a new form which we recommend strongly, and which may be seen by all interested at Messrs. Lee's nursery at Isleworth. Messrs. Lee have long paid much attention to such subjects, and have a rich collection of them. The varieties of Walnut, remarkable for the peculiarities of the fruit, also deserve the attention of those growing Walnuts and whose gardens suit their growth.



Cut-leaved Walnut.

SOUTHERN INDIA.

PROFESSOR M. Williams gives some interesting notes on the vegetation of S. India in the "Times":—"With regard to plant-life, it must be borne in mind that in the creed of the Hindoos, even plants may be permeated by divinity or possessed by the souls of departed relatives. No Hindoo will cut down the divine Tulsi, or knowingly injure any other sacred plant. As to the holy Pipal, it may indulge its taste for undermining walls and houses, and even palaces and temples, with perfect impunity. Happily, there is a limit to even the most pious Hindoo's respect for plant-life. Perhaps the most demonstrative and self-asserting and at the same time most useful of tropical trees is the Palm. Palm trees are ubiquitous in Southern India, and yet the eye never wearies of their presence. One hundred and fifty different species may be seen in Ceylon, among which the most conspicuous are the Cocoa-nut, the Palmyra, the Date, the Sago, the Slender Areca, and the Sturdy Talipot—often crowned with its magnificent tuft of flowers, which it produces only once

before its decay, at the end of about half a century. Avenues of Palm trees overshadow the roads and even line the streets of towns. The next most characteristic tree of Southern India is the Banyan. The sight of a fine Banyan tree is almost worth a voyage from Southampton to Bombay, and it can only be seen in perfection in the south. One which I saw in a friend's compound at Madura was 180 yards in circumference, and was a little forest in itself. Then there is the beautiful Plantain, with its broad, smooth leaves, rivalling the Palm in luxuriance and ubiquity. Then one must go to Southern India to understand how the Lotus became the constant theme of the Indian poets, and the symbol of everything lovely, sacred, and auspicious. Space indeed would be denied me if I were to tell of groves of Mangoes and Tamarinds, clumps of enormous Bamboos, gigantic creepers in full blossom, Tree Ferns, Oranges, and Citrons, hedges of flowering Aloes, Cacti, Priokly Pears, Wild Roses, and Geraniums, or even if I were to descant at large on such useful plants as Coffee, Cinchona, Tea, and Tobacco. With regard to the last I will merely say that our thriving colony of Ceylon is the true home of the Coffee plant, and that I found Coffee-planting there in a

peculiarly flourishing condition. Nearly £6 per cwt. is now given for Coffee which formerly realized only £2 10s. The island owes much of its present prosperity to Sir William Gregory's energetic Governorship. Coffee in great quantities is also grown on the Neilgherries, the hill districts of Mysore, the Wynnad, Travancore, and the Asambhu hills. Cinchona (yielding quinine) is being cultivated with great success in Ceylon, Sikkim, and some hill stations of Southern India. As to Tea, ever since the Tea-plant was found to be indigenous in Assam and Kachar, its cultivation has gone on increasing so rapidly that it is likely to become one of the staple products of India, and will vie as an export with Rice, Opium, Cotton, and Jute. It is said that 357,000 chests were exported last year from Assam, Kachar, and Darjeeling—the three chief Tea districts—alone. The cultivation is also carried on in other hill stations of Northern and Southern India. I am told that a great future is in store for Tobacco, and that it will take the place of Opium as a source of revenue, should the Chinese demand

for the latter cease. All that is wanted is skill in its cultivation. Its success in British Burmah is remarkable.

NOTES AND QUESTIONS ON TREES AND SHRUBS.

Destroying Moss on Trees.—A writer in the London "Garden" recommends sprinkling freshly powdered lime on the Moss in damp weather, which he says will kill the Moss without injuring the trees. A better way is first to scrape off the Moss with a light hoe, or the back of a knife, and then to wash the bark with lime-wash made from fresh lime, so thin as to give slightly a white appearance when dry—that is, with a consistency half-way between lime-water and whitewash.—Albany "Country Gentleman."

A Hint.—To see the Virginian Creeper in its glory one must seek it in the Missouri bottoms, where it is not uncommon to find a dead trunk of Cottonwood or Sycamore covered from the ground to the top, 30 ft. to 70 ft. high, one grand pillar of beauty. In autumn they are really gorgeous. At the same time other trunks are twined with the Bogonia (Scarlet Trumpet-flower), one blaze of brilliant colour from base to topmost twig.—S. MILLER, Selahna, Mo., in "New York Tribune." [As the Virginian Creeper grows quite as well with us as elsewhere, there is no reason why old dead trees in Britain should not be made as beautiful as those in the "Missouri bottoms."]]

THE PLANT-LORE OF SHAKESPEARE.

(Continued from p. 485).

Myrtle.

- (1) *Euphronius*. I was of late as petty to his ends
As is the morn-dew on the Myrtle-leaf
To his grand sea.
Antony and Cleopatra, act iii., sc. 12.
- (2) *Isabella*. Merciful Heaven,
Thou rather with thy sharp and sulphurous bolt
Split'st the unwedgeable and gnarled Oak
Than the soft Myrtle.
Measure for Measure, act ii., sc. 2.
- (3) Venus, with young Adonis sitting by her,
Under a Myrtle shade began to woo him.
Passionate Pilgrim.
- (4) Then sad she hasted to a Myrtle grove.
Venus and Adonis.

The Myrtle, though a most abundant shrub in the south of Europe, and though probably introduced into England before the time of Shakespeare, was only grown in a very few places, and was kept alive with difficulty, so that it was looked upon not only as a delicate and elegant rarity, but as the established emblem of refined beauty. In the Bible it is always associated with visions and representations of peacefulness and plenty, and Milton most fitly uses it in the description of our first parent's "blissful bower":—

The roofe
Of thickest covert was inwoven shade,
Laurel and Mistle, and what higher grew
Of firm and fragrant leaf.
Paradise Lost, 4.

In heathen times the Myrtle was dedicated to Venus, and from this arose the custom in mediæval times of using the flowers for bridal garlands, which thus took the place of Orange blossoms in our time.

The lover with Myrtle sprays
Adorns his crisped cresses.
Drayton.

And I will make thee beds of Roses,
And a thousand fragrant posies;
A cap of flowers and a kirtle
Embroidered o'er with leaves of Myrtle.
Rochefort's Ballads.

As a garden shrub every one will grow the Myrtle that can induce it to grow. There is no difficulty in its cultivation, provided only that the climate suits it and the climate that suits it best is the neighbourhood of the sea. Virgil describes the Myrtles as "amantes littora myrtos," and those who have seen the Myrtle as it grows on the Devonshire and Cornish coasts will recognise the truth of his description.

Nettles.

- (1) *Cordelia*. Crowned with rank Fumitor and furrow weeds,
With Harlocks, Hemlock, Nettles, Cuckoo-flowers.
King Lear, act iv., sc. 4.
- (2) *Queen*. Crow-flowers, Nettles, Daisies, and Long Purples.
Hamlet, act iv., sc. 7. (See Crow-flowers).
- (3) *Antonio*. He'd sow it with Nettle seed.
Tempest, act ii., sc. 1.
- (4) *Saturnianus*. Look for thy reward
Among the Nettles at the Elder tree.
Titus Andronicus, act ii., sc. 3.
- (5) *Sir Toby*. How now, my Nettle of India.
Twelfth Night, act ii., sc. 5.
- (6) *King Richard*. Yield stinging Nettles to my enemies.
Richard II., act iii., sc. 2.
- (7) *Hotspur*. I tell you, my Lord, out of the Nettle, danger, we pluck
this flower, safety.
1st Henry IV., act ii., sc. 3.
- (8) *Ela*. The Strawberry grows underneath the Nettle.
Henry V., act i., sc. 1.
- (9) *Cressida*. I'll spring up in his tears, an 'twere a Nettle against May.
Troilus and Cressida, act i., sc. 2.
- (10) *Menenius*. We call a Nettle but a Nettle, and
The fault of fools but folly.
Coriolanus, act i., sc. 1.
- (11) *Laertes*. Goads, Thorns, Nettles, tails of wasps.
Winter's Tale, act i., sc. 2.
- (12) *Iago*. If we will plant Nettles or sow Lettuce.
Othello, act i., sc. 3. (See Hyssop).

The Nettle needs no introduction; we are all too well acquainted with it, yet it is not altogether a weed to be despised. We have two native species (*Urtica urens* and *U. droica*) with sufficiently strong qualities, but we have a third (*U. pilulifera*) very curious in its manner of bearing its female flowers in clusters of compact little balls, which is far more virulent than either of our native species, and is said by Camden to have been introduced by the Romans to chafe their bodies when frozen by the cold of Britain. The story is probably quite apocryphal, but the plant is an alien, and only grows in a few places.

Both the Latin and English names of the plant record its qualities. *Urtica* is from *uro*, to burn; and *Nettle* is (etymologically) the same word as *needle*, and the plant is so named, not for its stinging qualities, but because at one time the Nettle supplied the chief instrument of sowing, not the instrument which holds the thread, and to which we now confine the word *needle*, but the thread itself, and very good linen it made. The poet Campbell says in one of his letters—"I have slept in Nettle sheets, and dined off a Nettle table-cloth, and I have heard my mother say that she thought Nettle cloth more durable than any other linen." It has also been used for making paper, and for both these purposes, as well as for rope-making, the Rhea fibre of the Himalaya, which is simply a gigantic Nettle (*Urtica* or *Böhmeria nivea*), is very largely cultivated. Nor is the Nettle to be despised as an article of food. In many parts of England the young shoots are boiled and much relished. In February, 1661, Pepys made the entry in his diary—"We did eat some Nettle porridge, which was made on purpose to-day for some of their coming, and was very good." Gipsies are said to cook it as an excellent vegetable, and M. Soyer tried hard, but almost in vain, to recommend it as a most dainty dish. Having so many uses, we are not surprised to find that it has at times been regularly cultivated as a garden crop, so that I have somewhere seen an account of tithe of Nettles being taken, and in the old churchwardens' account of St. Michael's, Bath, is the entry in the year 1400, "Pro urticis venditis ad Lawrenceum Bebbe, 2d."

In other points the Nettle is a most interesting plant. Microscopists find in it most beautiful objects for the microscope; etymologists value it, for it is such a favourite of butterflies and other insects that in Britain alone upwards of thirty insects feed solely on the Nettle plant, and it is one of those curious plants which mark the progress of civilization by following man wherever he goes.

But as a garden plant the only advice to be given is to keep it out of the garden by every means. In good cultivated ground it becomes a sad weed if once allowed a settlement. The Himalayan *Böhmerias*, however, are handsome, but only for their foliage, and though we cannot, perhaps, admit our roadside Dead Nettles, which, however, are much handsomer than many foreign flowers which we carefully tend and prize, yet the Austrian Dead Nettle (*Lamium Orvala*, Bot. Mag. v. 172) may be well admitted as a handsome garden plant.

Nut (see Hazel).

Nutmeg.

- (1) *Orleans*. Ho's (the horse) of the colour of the Nutmeg.
Henry V., act iii., sc. 7.
- (2) *Olown*. I must have Saffron, Mace, Date, Nutmegs.
Winter's Tale, act iv., sc. 2.
- (3) *Arnabo*. The omnipotent Mars, of lances the almighty,
Gave Hector a gift—
Dumain. A gilt Nutmeg.
Love's Labour's Lost, act v., sc. 2.

Gerarde gives a very fair description of the Nutmeg-tree under the names of *Nux moschata* or *Myristica*; but it is certain that he had not any personal knowledge of the tree, which was not introduced into England or Europe for nearly 200 years after. Shakespeare could only have known the imported Nut and the Mace which covers the Nut inside the shell, and they were imported long before his time. Chaucer speaks of it as—

Notemygge to put in ale
Whether it be moist or stale,
Or for to lay in cofre.—*Sir Thopas*.

The Nutmeg-tree (*Myristica fragrans*) is a native of Tropical India.

Oak.

- (1) *Prospero*. If thou more murmur'st, I will rend an Oak,
And peg thee in his knotty entrails.
Tempest, act i., sc. 2.
- (2) *Prospero*. To the dread rattling thunder
Have I giv'n fire, and rifted Jove's stout Oak
With his own bolt. *Ibid.*, act v., sc. 1.
- (3) *Quince*. At the Duke's Oak we meet.
Midsummer Night's Dream, act i., sc. 2.
- (4) *Benedick*. An Oak with but one green leaf on it would have answered
her.
Much Ado About Nothing, act ii., sc. 1.
- (5) *Isabella*. Thou split'st the unwedgeable and gnarled Oak.
Measure for Measure, act ii., sc. 2 (see Myrtle).
- (6) *1st Lord*. He lay along
Under an Oak, whose antique root peeps out
Upon the brook that brawls along this wood.
As You Like It, act ii., sc. 1.
- (7) *Oliver*. Under an Oak, whose boughs were Mossed with age,
And high top bald with dry antiquity.
Ibid., act iv., sc. 3.
- (8) *Paulina*. As ever Oak or stone was sound.
Winter's Tale, act ii., sc. 3.
- (9) *Messenger*. And many strokes, though with a little axe,
Hew down, and fell the hardest-timbered Oak.
3rd Henry VI., act ii., sc. 1.
- (10) *Mrs. Page*. There is an old tale goes that Herne the Hunter,
Sometime a keeper here in Windsor Forest,
Doth all the winter time at still midnight
Walk round about an Oak, with great ragged horns.
- Page*. There want not many that do fear
In deep of night to walk by this Herne's Oak.
- Mrs. Ford*. That Falstaff at that Oak shall meet with us,
Disguised like Herne, with huge horns on his head.
Merry Wives of Windsor, act iv., sc. 4.
- Fenton*. To-night at Herne's Oak. *Ibid.*, act iv. sc. 6.
- Falstaff*. Be you in the park at midnight at Herne's Oak, and you
shall see wonders. *Ibid.*, act v., sc. 1.
- Mrs. Page*. They are all couched in a pit hard by Herne's Oak.
- Mrs. Ford*. The hour draws on; to the Oak, to the Oak!
Ibid., act v., sc. 3.
- Quickly*. Till 'tis one o'clock
Our dance of custom round about the Oak
Of Herne the Hunter, let us not forget.
Ibid., act v., sc. 5.
- (11) *Timon*. That numberless upon me stuck, as leaves do
On the Oak, have with one winter's brush
Fell from the boughs, and left me open, bare
For every storm that blows.
Timon of Athens, act iv., sc. 3.
- (12) *Timon*. The Oaks bear masts, the Briers scarlet hips.—*Ibid.*
- (13) *Montano*. What ribs of Oak, when mountains melt on them,
Can hold the mortise?
Othello, act ii., sc. 1.
- (14) *Iago*. She that so young could give out such a seeming
To seal her father's eyes up close as Oak.
Ibid., act iii., sc. 3.
- (15) *Arrivagus*. To thee the Reed is as the Oak.
Cymbeline, act iv., sc. 2.
- (16) *Lear*. Oak-cleaving thunderbolts. *King Lear*, act iii., sc. 2.
- (17) *Nathaniel*. Though to myself forsworn, to thee I'll faithful prove;
Those thoughts to me were Oaks, to thee like Osiers
bowed.
Love's Labour's Lost, act iv., sc. 2.
[The same lines in the "Passionate Pilgrim."]
- (18) *Nestor*. When the splitting wind
Makes flexible the knees of knotted Oaks.
Troilus and Cressida, act i., sc. 3.
- (19) *Volumnia*. To the cruel wars I sent him, from whence he returned
his brows bound with Oak.
Coriolanus, act i., sc. 3.
- Volumnia*. He comes the third time home with the Oaken garland.
Ibid., act ii., sc. 1.
- Cominius*. He proved best man i' the field, and for his meed
Was browbound with the Oak. *Ibid.*, act ii., sc. 2.
- 2nd Senator*. The worthy fellow is our general; he is the rock, the
Oak, not to be wind-shaken. *Ibid.*, act v., sc. 2.
- Volumnia*. To charge thy sulphur with a bolt
That should but rive an Oak. *Ibid.*, act v., sc. 3.

- (20) *Casca*. I have seen tempests when the scolding winds
Have rived the knotty Oaks.
Julius Cæsar, act i., sc. 3.
- (21) *Celia*. I found him under a tree like a dropped Acorn.
Rosalind. It may well be called Jove's tree, when it drops forth
such fruit.
As You Like It, act iii., sc. 2.
- (22) *Prospero*. Thy food shall be
The fresh-brook muscels, withered roots, and husks
Wherein the Acorn cradled.
Tempest, act i., sc. 2.
- (23) *Puck*. All their elves for fear
Creep into Acorn-cups, and hide them there.
Midsummer Night's Dream, act ii., sc. 1.
- (24) *Lysander*. Get you gone, you dwarf—you bud—you Acorn!
Ibid., act iii., sc. 2.
- (25) *Posthumus*. Like a full-Acorned boar—a German one.
Cymbeline, act ii., sc. 5.

Here are several very pleasant pictures, and there is so much of historical and legendary lore gathered round the Oaks of England that it is very tempting to dwell upon them. There are the historical Oaks connected with the names of William Rufus, Queen Elizabeth, and Charles II.; there are the wonderful Oaks of Wistman's Wood (certainly the most weird and most curious wood in England, if not in Europe); there are the many passages in which our old English writers have loved to descant on the Oaks of England as the very emblems of unbroken strength and unflinching constancy; there is all the national interest which has linked the glories of the British navy with the steady and enduring growth of her Oaks; there is the wonderful picturesqueness of the great Oak plantations of the New Forest, the Forest of Dean, and other royal forests; and the equally, if not greater, picturesqueness of the English Oak as the chief ornament of great English parks; there is the scientific interest which suggested the growth of the Oak for the plan of our lighthouses, and many other interesting points. It is very tempting to stop on each and all of these, but the space is too limited, and they can all be found ably treated of and at full length in any of the many books that have been written on the English forest trees.

Oats.

- (1) *Iris*. Ceres, thou bounteous lady! thy rich leas
Of Wheat, Rye, Barley, Vetches, Oats, and Peas.
Tempest, act iv., sc. 1.
- (2) *Spring Song*. When Shepherd's pipe on Oaten straws.
Love's Labour's Lost, act v., sc. 2.
- (3) *Bottom*. Truly a peck of provender. I could munch your good dry
Oats.
Midsummer Night's Dream, act iv., sc. 1.
- (4) *Arminio*. Ay, Sir, they be ready, the Oats have eaten the horses.
Taming of Shrew, act iii., sc. 2.
- (5) *First Carrier*. Poor fellow, never joyed since the price of Oats
rose—it was the death of him.
1st Henry IV., act ii., sc. 1.
- (6) *Officer*. I cannot draw a cart, or eat dried Oats,
If it be man's work, I will do it.
King Lear, act v., sc. 3.

Shakespeare's Oats need no comment.

Olive.

- (1) *Clarence*. To whom the Heavens in thy nativity
Adjudged an Olive branch.
3rd Henry VI., act iv., sc. 6.—(see Laurel).
- (2) *Alcibiades*. Bring me into your city,
And I will use the Olive with my sword.
Timon of Athens, act v., sc. 5.
- (3) *Cæsar*. Prove this a prosperous day, the thrice-mocked world
Shall bear the Olive freely.
Antony and Cleopatra, act iv., sc. 6.
- (4) *Rosalind*. If you will know my house,
'Tis at the tuft of Olives here hard by.
As You Like It, act iii., sc. 5.
- (5) *Oliver*. Where, in the purlieus of this forest stands
A sheepcote fenced about with Olive trees.
Ibid., act iv., sc. 3.

- (6) *Viola*. I bring no overture of war, no taxation of homage; I hold
the Olive in my hand, my words are as full of peace as matter.
Twelfth Night, act i., sc. 5.
- (7) *Westmoreland*. There is not now a rebel's sword unsheathed,
But peace puts forth her Olive everywhere.
2nd Henry IV., act 4, sc. 1.
- (8) And peace proclaims Olives of endless age.
Sonnet 107.

There is no certain record by which we can determine when the Olive tree was first introduced into England. Miller gives 1648 as the earliest date he could discover, at which time it was grown in the Oxford Botanic Garden. But I have no doubt it was cultivated long before that. Parkinson knew it as an English tree in 1640, for he says:—"It flowereth in the beginning of summer in the warmer countries, but very late *with us*; the fruit ripeneth in autumn in Spain, &c., but seldom *with us*." ("Herball," 1640.) Gerard had Oleaster in his garden in 1596, which Mr. Jackson considers to have been the *Olea europea*, and with good reason, as in his account of the Olive in the "Herbal" he gives Oleaster as one of the synonyms of *Olea sylvestris*, the wilde Olive tree. But I think its introduction is of a still earlier date. In the Anglo-Saxon "Leech Book," of the tenth century, published under the direction of the Master of the Rolls, I find this prescription, "Pound Lovage and Elder rind and Oleaster, that is wild Olive tree, mix them with some clear ale and give to drink." (Book i., c. 37—Cockayne's translation). As I have never heard that the bark of the Olive tree was imported, it is only reasonable to suppose that the leeches of the day had access to the living tree. If this be so, the tree was probably imported by the Romans, which they are very likely to have done. But it seems very certain that it was in cultivation in England in Shakespeare's time, and he may have seen it growing.

But in most of the eight passages in which he names the Olive, the reference to it is mainly as the recognized emblem of peace; and it is in that aspect, and with thoughts of its touching biblical associations that we must always think of the Olive. It is the special plant of honour in the Bible, by "whose fatness they honour God and man," linked with the rescue of the one family in the ark, and with the rescue of the whole family of man in the Mount of Olives. Every passage in which it is named in the Bible tells the uniform tale of its usefulness, and the emblematical lessons it was employed to teach; but I must not dwell on them. Nor need I say how it was equally honoured by Greeks and Romans. As a plant which produced an abundant and necessary crop of fruit with little or no labour (*φύσει ἀκρίβωτον ἀνθρώπων*—*Sophocles*—non ulla est oleis cultura—*Virgil*), it was looked upon with special pride, as one of the most blessed gifts of the gods, and under the constant protection of Minerva, to whom it was thankfully dedicated.

We seldom see the Olive in English gardens, yet it is a good evergreen tree to cover a south wall, and having grown it for many years, I can say that there is no plant—except, perhaps, the Christ's Thorn—which gives such universal interest to all who see it. It is quite hardy, though the winter will often destroy the young shoots; but not even the winter of 1860 did any serious mischief, and fine old trees may occasionally be seen which attest its hardiness. There is one at Hanham Hall, near Bristol, which must be of great age. It is at least 30 ft. high, against a south wall, and has a trunk of large girth; but I have never seen it fruit or flower in England. Miller records trees at Campden House, Kensington, which, in 1719, produced a good number of fruit large enough for pickling, and other instances have been recorded lately. Perhaps if more attention were paid to the grafting, fruit would follow. The Olive has the curious property that it seems to bear a matter of indifference whether, as with other fruit, the cultivated sort is grafted on the wild one, or the wild on the cultivated one; the latter plan was certainly sometimes the custom among the Greeks and Romans, as we know from St. Paul (Romans xi., 16–25) and other writers, and it is sometimes the custom now. There are a great number of varieties of the cultivated Olive, as of other cultivated fruit.

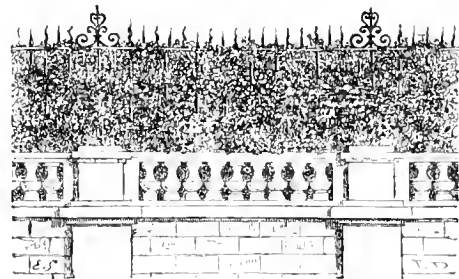
One reason why the Olive is not more grown as a garden tree is that it is a tree very little admired by most travellers. Yet this is entirely a matter of taste, and some of the greatest

authorities are loud in its praises as a picturesque tree. One short extract from Ruskin's account of the tree will suffice, though the whole description is well worth reading. "The Olive (he says) is one of the most characteristic and beautiful features of all southern scenery. . . . What the Elm and the Oak are to England, the Olive is to Italy. . . . It had been well for painters to have felt and seen the Olive tree, to have loved it for Christ's sake . . . to have loved it even to the heavy dimness of its delicate foliage, subdued and faint of hue, as if the ashes of the Gethsemane agony had been cast upon it for ever; and to have traced line by line the gnarled writhing of its intricate branches, and the pointed network of its light and narrow leaves, inlaid on the blue field of the sky, and the small, rosy-white stars of its spring blossoming, and the heads of sable fruit scattered by autumn along its topmost boughs—the right, in Israel, of the stranger, the fatherless, and the widow—and, more than all, the softness of the mantle, silver-grey, and tender, like the down on a bird's breast, with which far away it veils the undulation of the mountains."—"Stones of Venice," vol. iii., p. 176).

H. N. ELLACOMBE.

(To be continued).

Ivy on High Walls.—In some cases a green screen may be desirable far above the ground-line; and in connection with buildings it can easily be formed of Irish Ivy planted in deep boxes of rich



light earth or in a trough formed of stone or cement, as in such positions the effect of the Ivy is all the more telling from its contrast with the large expanse of stone. The particular screen of which the annexed is an engraving was formed about 20 ft. above the ground, and in a position where it could not be planted in the earth. If it be a question only of getting Ivy high enough, it will grow to a very great height from the ground, but frequently it happens that it cannot be so planted; besides, it may be desirable to have a high surface covered, and that beneath it bare.

Phœnix rupicola.—This is one of the most graceful amongst the smaller Palms, and in form takes a place among Phœnices similar to that which *Cocos Weddelliana* takes among the species of *Cocos*. In habit it is stemless, with wide arching leaves, having a slender midrib. They are broadly lance-shaped in outline, with long narrow pinnae, the lower of which become gradually reduced to spines. The pinnae are channelled at the base, and appear to be attached by the folded base which joins on to the winged rachis, the wings being pressed together along the spaces between the pinnae and continued into the lamina. Some of the lower pinnae and spines are set on in contiguous pairs. It comes from India, and is a most valuable acquisition for collections of ornamental plants, amongst which it will occupy one of the foremost positions. It is figured (see opposite page) from plants growing in Mr. W. Bull's nursery, Chelsea.

Birds' Nests in Hothouses.—We recently noticed in the gardens of S. Ralls, Esq., Cleveland House, Clapham Park, a sight worthy of the pencil of Mr. Harrison Weir. During the present year a robin built his nest in a specimen of *Erica depressa* which was growing in the greenhouse, and there reared its young, which left the nest the day before the plant was taken to the Crystal Palace Show. The parent birds then found access to the stove and built another nest on the surface of the pot of a flowering specimen of *Nepenthes Hookeriana*. In this nest eggs were laid, but just before they were hatched the bird was found dead in the nest. The nest and eggs remain, and the *Nepenthes*, which has several pitchers, certainly loses none of its attractiveness by the novel addition of the robin's nest and eggs.—"Journal of Horticulture."

Coal Oil v. Rabbits.—Mr. W. Riehl gives to "Colman's Rural World" a statement of his success in copiously using coal oil on his trees, on a former occasion, for keeping off rabbits. He says "it worked like a charm, no rabbit ever having touched the trees since"—as rabbits have no fancy for dead trees.

THE INDOOR GARDEN.

AZALEA INDICA.

CONSIDERED in a decorative point of view, the Azalea is without exception the most useful of all cultivated plants, as it forces readily, flowers freely in a large or small state, and affords an endless variety of brilliant colours, in addition to which it will bear as much or more hard usage than any other hard-wooded subject with which we have to deal. Were it not for

really worth keeping. This is more particularly the case where seed is taken indiscriminately, and care is not taken previously to the fertilization of the flowers to remove the anthers as soon as they can be got at, and to isolate the plants operated upon to prevent the wind, bees, or other agency from interfering with the work. Unless this be done, little dependence can be placed on effecting a cross between any particular varieties from which it may be desirable to breed, and disappointment generally ensues; but with the above precautions, and the swelling and ripening of the pods, success is a cer-



Phœnix rupicola (see p. 498).

the aid afforded by Azaleas from January to June, the exhibition tables at our horticultural shows could not be made anything like so attractive as they now are, and both greenhouses and conservatories would lack their principal ornaments if some of the many beautiful varieties did not find a place therein. Though great improvement has been made in Azaleas during the last few years, hybridizers do not appear to have devoted so much attention to them as to many other subjects, and this is probably owing to the length of time between the sowing of the seed and the blooming of the plants, also to the great number of inferior kinds in proportion to those that are

tainty, as they could not reach that stage if the foreign pollen had not taken effect. In endeavouring to raise new kinds, only the very best of the old ones should be selected as parents, such as have well-formed flowers of great substance, with the petals regular and bold in outline. Having chosen the plant it is intended to make the seed-parent, and prepared the way by removing the anthers as the blooms expand, the next process is to introduce the ripe pollen from any others of opposite colours, which may readily be effected by taking the flower between the finger and thumb, and lightly touching the ends of the anthers against the pistil, the glutinous matter adhering

to which will secure sufficient pollen to fertilize the ovary, which after a few days will begin to swell, and continue to do so till the pod commences to ripen. What is wanted in Azaleas is more doubles, as they are by far the most lasting and useful in a cut state, although they are not perhaps so showy and attractive on the plants as the single flowers, the beautiful outline of which is perfection. As there are so few of the former, there is a fine field open to those who may be disposed to commence such an absorbingly interesting occupation; and as whites are much in request for bouquets and other purposes, I would suggest that Flag of Truce and The Bride should be made use of as two of the most likely to produce a good hybrid.

Seed-sowing and Propagation.

The seed should be gathered when ripe, and stored away in the pods in some dry place till February or March, when it will be time to rub it out and sow it. This should be done in properly prepared pans filled with a mixture of fibry peat and silver sand pressed firmly in, with the surface made as level and smooth as possible. After this is done, and before sowing, the proper way is to give a gentle watering through a fine-rosed watering-pot, and in sufficient quantity to moisten the whole of the soil, so as to obviate the necessity of having to use more till the plants make their appearance, as, owing to the exceedingly fine nature of the seed, watering cannot easily be done without washing or disturbing it. All the covering they will require is a sprinkling of very fine sand, and in order to maintain a uniform state of moisture and assist germination, the best plan is to lay a piece of glass over the pan, and on that some Moss or brown paper to exclude the light and prevent any fluctuation in temperature. A moist stove or intermediate-house is the most suitable place for the pans and as a nursery for the plants till they are large enough to prick out into others, or in pots or boxes, in either of which they will thrive better than if potted separately, till they become strong and require more room, as owing to the greater body of soil they are not so likely to become dry and checked in growth. As the object is to flower them as soon as possible, the plants should not be stopped, but allowed to grow till they are proved, when any desirable kind may be propagated and increased either by cuttings or grafts; the former is the easiest and most certain method, except with those skilled in grafting, as that is the quickest way of getting plants up to a flowering size, and worked stock is preferred by many, as they are not so likely to send up suckers, and are more manageable in regard to training, &c. In propagating from cuttings the young wood should be in a semi-ripe state, and about 3 in. in length, and if this be taken and trimmed in the ordinary way by removing the two lower leaves, and the base cut away with a keen-edged knife close up to the bottom joint, there will be no difficulty in striking them if they receive proper attention afterwards. The best way is to insert each close around the edge of $\frac{1}{2}$ -in. or 6-in. pots, and range them clear of each other. Cuttings so inserted always do much better than if in larger pots, where they are more distributed over the soil, the reason of which is that the porous nature of the earthenware absorbs any superabundant moisture, and gives it out slowly, thereby keeping them in a uniform condition. The proper soil is a sharp sandy peat covered with $\frac{1}{2}$ in. of clean silver sand, which should be well watered to settle it about the cuttings; the pots should be plunged in others two sizes larger, and the interstice between filled up with sawdust, sand, or Moss, on which the bell-glass used for covering up the cuttings should be placed. By plunging them in this way several useful purposes are served, as it conserves and regulates the heat and prevents the air acting directly on the outsides of the pots in which the cuttings are placed. Stage them in any stove or intermediate-house till they root, and if they can be accommodated with a little bottom-heat all the better, but that is not a matter of great importance if they have an outer pot as above to protect them, and the temperature range between 75° and 80° . When rooted, they should be gradually inured to more air by tilting the bell-glasses, and after a week or so they will bear their removal altogether, and will be in a fit condition for potting. This should be done in fibry peat in 3-in. pots, when they must

again be placed where they can have a brisk moist heat to give them a start, and afterwards be treated in the same manner as flowering plants, to which I will presently allude.

Raising Seedlings.

In raising seedlings there is a double advantage, as any inferior kinds may be used for stocks, but, in doing this, only such as are healthy and vigorous-growing should be chosen, and to fit them for the purpose it will be necessary to train them up with clean, straight stems, varying from 6 in. to 12 in. high, near the tops of which the grafts should be attached. This operation is best effected by simply slicing a piece about $1\frac{1}{2}$ in. long from the side of the stock, a little deeper than the bark, and, having taken a corresponding piece from the scion, the two should be tied tightly together with soft Esparto Grass matting or worsted, and then covered by rubbing a little wet clay or grafting wax to exclude air and light from the wound. The best place to put them after this is done is in a close propagating box or frame, with a moist heat of 75° or so, in which they will soon unite, and the proper time for carrying out the operation is in spring, just as they commence to grow, as then they callus more readily. As soon as they are united and become firmly attached, the ligatures should be removed, or they will damage the plants. In grafting, I ought to have remarked that the stocks should not be beheaded, but left to grow on to draw the sap till the scion has effected a union, when it must be cut away just above the graft, in order to divert the sap into it. Any one following out the above instructions cannot fail in propagating Azaleas to their entire satisfaction.

General Cultivation.

In regard to the general cultivation of these plants, any that it is desired to get up to a useful flowering size as quickly as possible should at once receive a shift into larger pots, and be placed where they can obtain a little shade with gentle moist heat to urge them on. In potting make choice of good, tough, fibry peat, and see that it is in proper condition for use, which is rather on the dry side than otherwise, as then it will admit of being rammed firmly around the old balls without danger of rendering it close and pasty. Some growers recommend loam with the peat, but I am of opinion that they do much better without it or any other admixture whatever, except a sufficient quantity of sharp silver sand to keep the soil open and porous. As Azaleas require liberal supplies of water when growing, efficient drainage is the first consideration, but this should in no case be carried to excess, as from 1 in. to $1\frac{1}{2}$ in. of finely-broken crocks is ample, and all beyond that is needless and occupies room that should contain food for the roots. It often occurs in potting plants of this class that the ball is dry in the middle, and when that is the case it is seldom, if ever, it can be properly wetted through afterwards, and therefore if any doubt exist as to their condition in this respect, it is advisable to immerse them for a few hours previously in a tub of water, afterwards standing them to drain. By this treatment, and keeping the balls in a healthy, moist state before potting, the necessity of watering before they get hold of the fresh soil is obviated, which is a great advantage, as it is otherwise apt to become sour from the repeated requisite wettings for the plants. In order to keep them in a free-growing state during the summer they should be shut up early in the afternoon and have a good, heavy syringing, so as to wet both the upper and under portions of foliage. As the object is to fill the pots with roots, and to develop the plant in a short space of time, the flower-buds ought to be nipped out, when the shoots will start again; but in no case should any of these be stopped, unless they appear unduly strong and are robbing the remainder, and even in that case it is better to bend them down so as to check the flow of sap and divert it elsewhere, for with a frame or foundation thus laid it is an easy matter to furnish or fill it up after. By the end of September discontinue the syringing, and keep the plants in a temperature of about 40° by night till the beginning of March, when the same course of treatment may be again pursued till the plants have obtained the desired size.

Treatment after Flowering.

In respect to old plants that have now discontinued flowering the first thing to be done is to pick off all the seed-pods except those wanted for ripening. Small and unimportant as these may appear, there is nothing so exhausting to them as seed-bearing, and therefore it is of the greatest importance that they should be removed immediately the flowers fall, that the whole energies of the plants may be concentrated on the growth of young wood and in the production of bloom-buds.

This may appear an extreme measure to adopt, but Azaleas do not resent it in the least, indeed, after they have attained a certain age, and under the above conditions, they are considerably benefited thereby, and with such treatment old plants may be kept for many years in perfect health and vigour. When this course is adopted it should be done early in the season, just as they begin to grow, when the formation of fresh root fibre and young wood and foliage will go on simultaneously. After this treatment keep the plants heavily syringed



Araucaria Goldieana (see p. 502).

In the case of those already in pots as large as it is desirable to have them, they may be greatly assisted by giving them an occasional watering with weak liquid manure made from the droppings of deer, sheep, or cows; but whenever this is used it must be perfectly clear, or it will seal up the surface of the soil and render it impervious to air, which will soon throw the plants out of health. Another way of limiting the size of the plants to the pots and keeping them in good condition after they have exhausted the soil is to cut away a good portion of the old ball equally all round and repot in the same size again.

and shaded, and in a house where they can be kept close for a time till they fairly start. It is surprising the amount of heat Azaleas will stand and enjoy while making their growth and setting their flower-buds, provided the moisture they receive is in proportion, and it is from lack of these two essentials that we so frequently see the flowers so diminutive in size, as the buds do not receive the proper amount of assistance to develop them fully before winter sets in. This being the case, they should be kept under glass and treated in the same manner as to water, syringing, &c., as those that have had

their balls reduced, till the end of July, or even later if the buds do not appear well up, after which they may be ranged in some sheltered place out-of-doors, where they can be shaded by a tree or tall-growing shrubs for a few hours during the hottest part of the day. There they will enjoy the genial night dews and ripen up their growth better than if they remain the entire season in a house; but when out-of-doors there are two things to be guarded against, viz., continued heavy rains that often set in towards the autumn, and dryness at the roots, caused by the hot air acting on the sides of the pots. The first may be guarded against by leaning the plants on their sides, and the second by putting them in a pot a size larger than the one in which they are growing, and by frequent examinations as to their condition, making sure at all times to give them sufficient water when they require it to thoroughly soak the whole of the ball. S. D.

Goldie s Araucaria (A. Goldiana).—This very handsome species is intermediate between *A. elegans* and *A. Rulei*, but superior to both, having the majestic growth of the latter and the distinct leaf of the former. The leaves are dark green in colour, varying in size according to age, while the branches, as will be seen on p. 501, are quite pendulous. It will form a beautiful object both for the decoration of the conservatory and dinner-table. Good examples of it may now be seen in Mr. B. S. Williams' nursery at Holloway.

Pelargonium Queen of Stripes.—

Amongst the most decorative varieties in the large-flowered *Pelargoniums* must be ranked the beautiful forms of bluish-white with rich carmine-rose flakes and bars, which may very appropriately be termed *Carnation-striped*. The one here named attracted great notice and much admiration when exhibited by the Rev. A. Rawson before the Floral Committee of the Royal Horticultural Society at South Kensington, and was awarded the highest certificate of merit in testimony of its superior character to any hitherto known in its class. Its growth is neat and compact, and the bloom rises well above the foliage. The flowers are produced in compact and ample trusses of six or eight blossoms in each, of good outline and substance; the ground colour is elegant bluish-white, the petals being finely striped or barred with carmine-rose, each of the upper ones being marked with crimson lines surmounted with an intense crimson blotch.—H. [A truss of this *Pelargonium*, which we have seen, fully bears out this description.]

River Scene in a Park.—This shows a river flowing beside a park in which various attempts at small lakes have been made, while, for the most part, the fine opportunities offered by the river have not been taken advantage of. Wherever a garden or park possesses natural advantages of this kind, it is well to develop them, and make no attempt whatever at artificial water. Lake-like reaches, islets, effective planting, turf-margined bays, and every feature that makes water charming, may be easily secured in such a case far more readily than in the case of purely artificial water.

Fern-fronds Green and Lasting.—I am pleased to see *Asplenium Adiantum nigrum* now used for bouquets in Covent Garden Market. It has a capital green colour, and stands well. Considering how plentiful it is in some parts of Southern England, it is amusing to learn that the fronds shown to me came from Nice.—W. T. T.

PLATE LXXVIII.

THE DWARF PHLOXES.

(WITH A COLOURED FIGURE OF A VARIETY OF *P. SUBULATA*).

Drawn by H. NOEL HUMPHREYS.

AMONGST the Phloxes are several distinct types which differ in habit and time of blooming, but they retain in a well-marked manner the general structural characters upon which the genus was established. Thus we have a group of dwarf, trailing plants—all essentially early spring bloomers—and admirably adapted for the rock garden; and we have the tall autumn Phloxes which constitute one of the most effective types of plants belonging to the herbaceous border, and which have received such attention at the hands of hybridizers that in point of variation their name is legion. Besides these two there is an intermediate group of comparatively dwarf border plants represented by *P. carolina*, *P. suffruticosa*, and others rarely met with in cultivation now-a-days. To the first of these groups the plant here illustrated belongs:

The Awl-leaved Phlox (*P. subulata*) of which that figured is a very distinct form, is one with which most plant cultivators are

familiar. It is a dwarf, trailing plant with close-jointed stems densely covered with narrow-pointed, somewhat fleshy, opposite leaves. The flowers, which are produced in such abundance in April and May as almost to cover the entire plant, are of a pale pink colour with a tendency to deepen in tint round the mouth of the short tube of the corolla. They are about half the size of those represented by the accompanying illustration. It is a native of the mountainous regions in the Southern States of America, the New World being the home of the entire genus without any exception. Besides the variety of *P. subulata* here figured, which may possibly be that recorded in books under the title of *P. subulata* var. *oculata*, we have one with pure white flowers sometimes

confounded with the following species, but nevertheless perfectly distinct.

The Snowy Phlox (*P. nivalis*).—This is of equally proeminent habit to the preceding, also of smaller growth; the leaves are shorter and more densely arranged; the flowers are of snow-white purity. Its specific title has therefore a double significance, being alike expressive of the appearance which its flowers present, and of the locality which it affects—near the snow-line of the Rocky Mountains.

Nelson's Hybrid Phlox (*P. Nelsoni*).—This is no doubt a hybrid between the two foregoing species, possessing an intermediate character as regards foliage, and along with the pure white flowers of the latter its beauty is enhanced by retaining the charming pink eye of the former.

The Bristly Phlox (*P. setacea*).—Though a close relation to the preceding as a species, this is amply distinct, its leaves are longer, more distinctly linear rather than subulate, and arranged further apart on its trailing stems than they are in *P. subulata*, and the whole plant is less hard and rigid in its texture. The flowers, which are of a charming soft rosy-pink, have delicate markings at the mouth of the tube. Besides the original, we have a handsome variety that originated in Scotland distinguished by a greater laxity of growth, and also a much deeper tint of colour almost approaching a crimson; this is known as *P. setacea violacea*: both are lovely plants and desirable ones for rockwork, where, with the roots deeply seated among



River Scene in a Park.



AN ALPINE PHLOX P. SUBULATA - VAR.

the fissures in the enjoyment of coolness and moisture, the plant is enabled to sustain and thrive luxuriantly in any amount of sunshine.

The Leafy Trailing Phlox (*P. frondosa*).—This, though possibly a garden name, and not one recognised by botanists as representing a distinct species—is, for all cultural purposes, distinct, and readily recognised from any of the preceding. In growth it is decidedly the most vigorous of the section to which it belongs, and along with the trailing habit and long leaves of the preceding species we have a fleshy character somewhat similar to that of *P. subulata*; in fact, the plant might not unfittingly be referred to a large variety of that species, and perhaps it would be almost better to substitute the title of *P. subulata maxima* in lieu of its garden *soubriquet*, *P. frondosa*. So vigorous is its growth that it makes an admirable plant for the front rank of a sunny herbaceous border, where in any ordinary light garden soil it will trail in a few years so as to cover almost a square yard of surface. Its trailing branches are rendered more massive-looking by the formation of a dense rosette of leaves, an abbreviated stem, in fact, in the axil of each of the older leaves; hence arises the foliaceous character from which its specific name was derived.

P. Douglasi and **P. bifida** belong to this setaceous section, and are good, distinct species, though by no means so showy as those just enumerated; the former has very fleshy, densely arranged leaves and mauve-coloured flowers, and was introduced some thirty years ago amongst seeds from the higher regions of the Rocky Mountains; the latter is a singular-looking woody plant, with long trailing stems, it is of recent introduction, but is rarely met with in cultivation. Besides the foregoing, there is another quite distinct trailing group with broad, more or less ovate leaves, of which the old *P. ovata*, with its variety *P. Listoni*, may be taken as a type. It includes *P. reptans*, equally well known as *P. stolonifera*, and *P. verua*; also *P. divaricata* and *P. canadensis*.

So closely allied are the foregoing species that the cultural remarks which apply to one will equally apply to all. Well-drained ordinary garden soil, with a good sunny exposure, constitute the necessary elements of success. Though perfectly hardy and unaffected by even extreme frosts, they cannot endure the damp atmosphere of mild winters such as the past has been, the result being large patches of decay, if not the absolute death of the plants. None of these species seed freely, and their increase must be by means of cuttings or by layers; the former require very careful manipulation, as they are liable to break off just above the node or joint to which the leaves are attached, thus completely neutralizing the chance of success. A sharp knife and a careful hand will soon remove the two or three pairs of leaves with their included buds without damaging either the slender stem or joint; and these, when taken off in July, when the branches are just commencing to harden, and inserted in sandy soil in a frame where they can be shaded from full sunshine, and given the benefit of the night dews by the removal of the lights, will soon root and become good flowering plants the following season. Where large patches are growing, the readiest mode of increase is sprinkling sandy soil over the entire plant and working the same gently amongst the branches with the hand. If this be done during the summer or early in autumn, the trailing branches will be found to have formed roots, and may be readily removed and planted elsewhere the following season. By this means well-established plants are formed at once; but where numbers are required, increase by means of cuttings is preferable.

J. C. NIVEN.

Botanic Gardens, Hull.

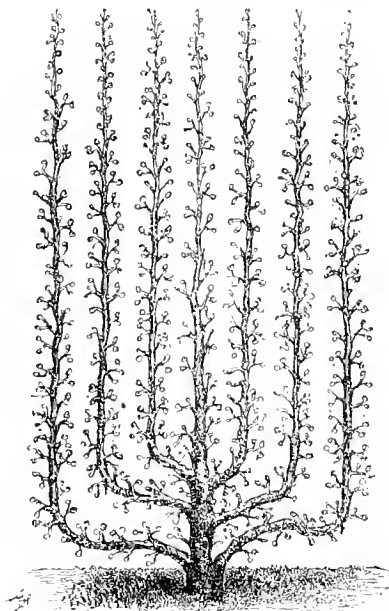
Attar of Roses.—Klissoura in Bulgaria has long been celebrated for the manufacture of Attar of Roses. During the recent warfare the stills, called *kezans*, were all destroyed, but the consequent distress of the natives has been relieved by Lady Strangford by supplying them with 110 new *kezans*.

The Banyan Tree and the Temple.—The power of the pendent root of the Banyan has been lately exhibited in the celebrated Temple of Juggernaut. The sacred edifice, which for seven centuries defied the elements and encroachments of age, is now found to be on the brink of destruction. The seeds of the Banyan tree have got under the foundations, and the whole fabric has been loosened. The ruin was first indicated by the falling of some large stones just after the idols had left the temple on the last car festival. This catastrophe has, as may be imagined, caused great consternation, and is likely to have a disastrous effect on the prestige of the Juggernaut. It is a curious coincidence that the most celebrated Hindoo temple should have been thus undermined by trees held sacred, if not divine, by the whole Hindoo nation. In the ruins of Palenque, Copan, and Uxmal (in Central America) many travellers have beheld, and the pencil of Catherwood has portrayed, the havoc wrought by the huge trees which have established themselves among the ledges and cornices of temples and pyramids reared by races which are now extinct.

THE FRUIT GARDEN.

UPRIGHT PEAR TREES.

THE accompanying woodcut represents the simplest and best form of tree for rapidly covering walls with choice Pears. Before this and like forms the old horizontal pattern, which took so many years to form, must die out. Among the many advantages that belong to the upright form may be mentioned that of simple training. To establish such trees, all that need be done is to take a young five or seven-branched tree and place the branches as near as may be in the desired position to ascend. It is not even necessary to have the



Upright Pear Tree.

branches opposite, as without that the wall may be perfectly covered. With trees of this kind a very few years' growth will suffice to cover a wall that would not be covered in sixteen years by the old method.

V.

SUMMER CULTURE OF HARDY FRUITS.

Strawberries.—A good display of blossom on the Strawberry quarter, even after it has escaped the frosts, is not always a guarantee of a good crop, if the summer culture of the plants be neglected. The weight of crop very much depends upon watering, mulching, and manuring, particularly in dry seasons, even though the ground may have been well enriched when prepared at the beginning. A mulching of half-rotten stable manure, or, in its absence, decayed bedded manure or similar material should be applied now, if not already done, covering the ground between the rows 2 in. or 3 in. deep, and well up to the collars of the plants. This will keep the ground uniformly moist, and at the same time render the placing of straw between the rows unnecessary, as the rain washes the mulching quite clean, and it serves the same end. Should manure not be available for mulching, short Grass may be used, and plenty of it; as, in the course of the summer, a thin layer of it soon shrivels up and vanishes. We prefer, in our case, to delay mulching till the flower-scapes are up fairly, or even until the fruit is set in tolerably moist seasons, as, when manure is put on, we find it stimulates the foliage too much, at the expense of the flowers; but in our thin soil a mulching of some kind is indispensable, and in light or sandy soils it is the only way of insuring well-swelled fruit. Before the mulching is applied to them the ground should be hoed and cleaned, and, if it be dry, also watered, and then mulched at once. When fresh plantations have to be formed in autumn, a year is just saved by layering the runners in good time, and keeping them stopped beyond the layer. Perhaps the very finest fruit for size and quality is obtained from plants that have been layered early in the season and planted the previous August; and when plantations have to be made, it is just as easy to give the plants some sort of preparation as not. With this object, a ridge of good soil should be laid between the rows, and the runners

laid on it; and when well rooted, they should be at once transplanted—by August at the latest. There has been much dispute concerning the practice still in force in some parts of cutting the foliage off the plants after they have done bearing, in order to encourage a later growth. Theoretically, the practice seems wrong; but it is a fact that some of the best cultivators adopt it. Probably it succeeds better in some parts than in others. In late districts the practice is not to be recommended, as the second growth of leaves and crowns has not time to mature; but in early seasons, or in early localities, we think it is advisable to cut the oldest leaves off to let the light into the crowns. It is a noticeable fact that the first growth of leaves is always tall and rank, and that when they are cut away about July the second growth is short and stocky, the leaves broad, and the crowns prominent, like plants grown in pots for forcing; and in such cases the plants invariably bear well. Plants that have been forced in pots and afterwards planted out, make their growth during August and September, and have also the same squat habit, never making a rank growth; yet it is well known that they invariably bear enormously. It is proverbial that such plants never miss a crop. The cutting-over process may therefore be recommended when the crop is soon over, and the foliage old and rusty by mid-summer; but the operator should be careful not to cut too close to the crowns.

Small Fruits.—The practice of digging, either with the spade or the fork, among Gooseberry and Currant bushes during the summer, is to be condemned. Nothing deeper than a push hoe should come upon the ground. All are benefited by thick mulchings, especially the Red Currant, which is more subject to honeydew than the others in dry seasons; and the mulching, by keeping the roots moist and encouraging growth, keeps it off. The Red Currant usually makes a very profuse growth, and the trees are much benefited by summer pruning, which consists in removing the suckers which spring from the base of the plants, usually very abundantly, and in shortening the side-shoots of the main limbs something in the same way as bush Pear trees. Gooseberry bushes are also benefited by similar treatment; but Black Currant bushes, unless it is to thin out the shoots, may be left alone till the winter pruning. Raspberries only need a good mulching and abundance of water at the roots when the fruit is swelling; the weakest of the young canes should also be removed to give the others room, five or six being sufficient at a stool.

Fruit Trees.—The grand point in the culture of all fruit trees is to provide a successional growth of bearing shoots or spurs. Beginning with wall trees, and taking the Apricot first, the chief points of summer culture consist in disbudding in good time, so as never to allow the shoots to get crowded and smother each other, and afterwards in keeping the front or fore-right shoots regularly pinched at every two or three joints, and laying in leading shoots wherever they may be needed to cover the wall. The Apricot produces its fruit on the shoots of the previous year's growth, and also on spurs along the branches, and both should be assiduously cared for and encouraged as above directed. The roots prefer a rather firm and well-drained soil, but require, nevertheless, an abundant supply of water during the fruiting season. Much of the rain which falls upon sloping borders of a hard texture runs off, and they are often drier than is imagined. They should therefore be either slightly forked over or mulched to prevent evaporation, and when the summer is dry well watered. We have seen trees on the open wall absolutely flagging for want of water under such circumstances, which is very injurious to the trees. Dryness at the root means the starvation of the present crop and the failure of the next.

Peaches.—With these the main thing is to keep the shoots as thinly and regularly distributed as possible. They should first be allowed to make a good growth, and then be laid in loosely, keeping the fruit always well exposed to the sun from the commencement. The root treatment is the same as for the Apricot, only as the Peach is more subject to insects, red spider particularly, mulching and watering is of even more consequence in its case, and is far more effectual than the syringe or insecticides in keeping down these pests. Mildew, however, must be destroyed by sulphur dusted on the leaves or applied by the syringe, or some of the antidotes for that disease may be tried; the "Mildew Composition" has a good name.

Plums and Cherries.—These should be treated, as regards pinching and training, like the Apricot, keeping them spurred in in fronts, and letting the terminal shoots which are laid in extend as much as they will, except such as are getting the lead too much, which should be stopped. Watering and mulching are highly beneficial, as both the Cherry and Plum root near the surface of the ground.

Bush and Pyramid Trees.—Apples and Pears on dwarf stocks require little more attention than the thinning out of the shoots and pinching the lateral ones on the main limbs, so as to admit the light freely among the branches and keep the trees in shape; but rigid formality is to be avoided. The natural bush shape is as good as any, and quite as ornamental, while it affords the greatest facilities for extending the bearing capacity of the trees. The terminal shoots of the main limbs should not be stopped at all, except when very strong, or when necessary to retain the balance among the branches. Shoots that are allowed to grow always furnish the most fruit-buds. The directions also apply to trees on the natural stock, when these are trained or pruned; but the orchard is the place for them, and there thinning the branches out occasionally is all that is needed. J. S.

STRAWBERRY CULTURE.

I HAVE heard of Strawberries having done badly in the open ground this winter owing to the excessive wetness of the soil, but the complaint is, I believe, local. My own plants, and those growing near me, are marvellously full of flower; indeed, I have never seen a better show on all kinds. I have a plantation of tall-planted runners of last year of the following sorts, viz., President, Le Gros Sucré, Héricart de Thury, James Veitch, Lucas, Sir Joseph Paxton, Amateur, Empress Eugénie, Dr. Hogg, Frogmore Late Pine, Premier, and Mr. Radclyffe, in all about 1500 plants, and it speaks well for their blooming qualities that only a few weak plants out of the entire number are without good trusses of flower. I have just been looking over about 2000 plants in pots at the Grove Vineyard, Feltham, consisting of Héricart de Thury, President, and Sir Charles Napier, and Mr. Cole stated that not only did not a single plant prove blind, but further that he had to remove a great quantity of bloom. Mr. Cole grows his plants in small 8½ in. pots, and the crops produced are of the most satisfactory kind. Notwithstanding the many plants that have been put forward as the best as regards planting out permanent plantations of Strawberries, I should like to add my own. Where there is a good stock runners of any particular sort can always be had in abundance, therefore when the ground is prepared, instead of planting in rows at 24 in. or 30 in. with the object of putting in a crop of Onions or Dwarf Beans between the rows the first year, plant at once good selected runners in rows 12 in. apart every way. The first year, if the runners be good and got out early, that is, directly after a crop of early Potatoes or Peas, there will be a good gathering of valuable medium-sized fruit that will make a good paying crop. Then, directly the fruit is gathered, cut out every other line of plants; fork or horse-hoe 12 in. in width between the rows, and leave space for the runners to give stock. Directly enough of these are rooted, lift them, and clear away all useless runners, and again horse-hoe lightly or use the hand-hoe deeply; then add a good dressing of long stable-manure, and allow that to remain, and if needed add long refuse straw in the spring before the fruit is ripe. After the gathering of the second year's crop, cut out every other plant in the rows, and thus for the third year's fruiting the plants will have 24 in. each way. As by that time, if the ground be good and the plants have done well, the shoots should be from 15 in. to 16 in. over, it is evident that the space given will be none too much. The third season the same treatment should be given, and after that crops taken off the plants should be cleared off, the soil broken up deeply, and cropped for two or three years with vegetables before being again laid down with Strawberries. To keep up a good succession it will be necessary to plant out one-third of the required ground to be under fruit every year, and should a partial failure result to one portion, the others will prove useful supporters. From what I have seen of the mischief done to the crowns of the plants by the laborers and women when taking off the vegetable crops, I believe that much more harm is done to the Strawberries than the other crops repay. A. D.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Synonyms.—In Mr. O. Thomas's (of Metz) catalogues of fruits, there are nearly 10,000 synonyms enumerated. The May Duke Cherry has over sixty appellations; Pear Doyenné d'Hiver, fifty-six; and Catillac, sixty-eight. Frankenthal (Black Hamburg) grape has fifty-five; and Chasselas de Fontainebleau (Royal Muscadine), forty-one synonyms.

A New Enemy of the Vine.—In a paper addressed to the Academy of Sciences, M. Schenetzler calls attention to a new Vine disease, which seems to be spreading over Switzerland, Germany, Savoy, and other parts of France. It consists of mycelia (threads) of Mushrooms, that invade all the underground parts of the plant, causing in a short time the decay of the branches, the withering of the leaves, and ultimately the death of the whole stock.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Acacias and Cytisus.—Acacia Drommoudi and *A. armata* are the two best varieties for pot culture, as when placed in a little heat, they can be brought into flower early in the winter; they are very suitable for amateurs, being easy of growth, and not liable to die off suddenly through either a superabundance or scarcity of water like many hard-wooded plants. Young plants of these Acacias that have been grown on from a small state, and others that are larger, and have been cut back and repotted after blooming, will, in most cases, have made sufficient growth, and should be exposed in the open air; this is necessary to fully harden and mature the growth, and to induce the formation of flowers, for if the plants be kept under glass in a growing state all the summer, they will not produce flowers in such profusion as if thus exposed. By getting them out-of-doors in good time, they will be in a condition to bloom earlier through the winter. The very useful winter-blooming *Cytisus racemosus superbus*, which is much better than the common *C. racemosus*, requires to be similarly treated: if a few examples of this free, delicate, yellow-flowering plant be grown, a succession of its highly fragrant flowers may be had through the winter.

Boronia serrulata is another highly fragrant subject, as a small plant in a 6-in. pot will fill a large house with perfume. Any one with a moderate knowledge of general plant-growing may venture to cultivate it, as it is not liable to die off; it is of dwarf, compact habit, and grows freely in sandy peat; when it has ceased flowering, cut back the shoots to within 6 in. of where it was stopped last year; if this be omitted, the plant soon gets into a straggling condition. It should be kept in the greenhouse for some time yet, exposed to full light, and syringed overhead every afternoon; this treatment is necessary, in order to keep down red spider, a pest to which it is somewhat liable.

Daphne indica, the most general favourite of all sweet-scented, hard-wooded plants, should, if possible, be kept on growing in a pit where a little closer atmosphere than that of an ordinary greenhouse is maintained, or it may be placed on the front shelf of a late Vinery, as the warm, moist atmosphere produced by syringing and closing the house early in the afternoon will completely answer its requirements; so treated it will make double the amount of growth that it would in a greenhouse, which is so far an advantage that it admits of more of the flowers being cut than when the plant makes less progress, although, under no conditions, should too many shoots be removed when in bloom. This plant ought never to be exposed to the open air, as from its spare, somewhat delicate-rooted nature, it suffers if the soil become too wet by exposure to rains. As generally seen, it is of medium growth, and even by those whose glass accommodation is limited half-a-dozen plants will not be too many to grow, and by keeping a portion through the winter a little warmer than others a long succession of flowers may be secured. It is essential never to overpot or overwater it.

Nerium splendens (the Oleander).—Both the pink and white varieties of the Oleander are amongst the best plants that amateurs with even a small greenhouse can grow; their beautiful Carnation-like flowers are produced freely on even small plants in 6-in. pots when the growth has been fully matured; this latter qualification is requisite, or they will fail to bloom. I should recommend amateurs who attempt their cultivation to strike a few every spring; they will root as freely as Willows with ordinary cutting treatment. Plants will bloom freely the ensuing summer, if they be struck in the spring, the leading shoots stopped, kept on growing in a greenhouse or Vinery through the summer, and the amount of water reduced in the winter, moved into 6-in. or 7-in. pots the following spring, grown under glass until midsummer, and then turned out in the full sun for the remainder of the season. Any one possessing a large plant with a number of shoots, may turn it out-of-doors any time during this month, where it will be under the full influence of the sun, through July and August, keeping it somewhat dry at the root, so as to check growth, and then take off the top shoots about 8 in. or 9 in. in length, inserting them in small pots, and putting them where they can have a little bottom-heat to assist the formation of roots, at the same time keeping the top as cool as possible to retard top growth; in a short time the shoots will become established plants. Give them ordinary greenhouse treatment through the winter, and they will bloom plentifully the following summer, and can be brought in earlier by subjecting them to the temperature of a warm pit or mid-season Vinery; plants treated in this latter way are confined to a single shoot. After blooming cut them down to within 6 in. of the pot, and as soon as they have started give them pots an inch or two larger, and encourage growth, after which submit them to a hardening process out-of-doors in the sun. If required the plants may be

grown to a very large size, but it is not desirable, even where there is ample room, as they are more useful in a small state, and from their extremely easy propagation, by a little forethought, young stock can always be obtained in succession, consequently it is better to discard them after the second season's blooming. They succeed best in loam, having a greater disposition to flower in it than in peat.

Pleroma elegans is another easily-grown, hard-wooded plant, suitable for amateurs, producing freely its unapproachable deep purple flowers. Like the foregoing, it strikes as freely as a *Verbena* from the half-ripened shoots put in about the present time; they are best struck singly in small pots drained and filled with a mixture of sifted loam, peat, and sand, kept moist covered with a bell-glass, shaded and placed on an ordinary hotbed. They will root in a few weeks, after which they may be fully exposed, the points of the shoots pinched out to induce them to break, and subjected to greenhouse treatment for a couple of years, in the second summer of which they should be placed out-of-doors in the open air at the shady side of a tree or wall that will prevent the sun in the middle of the day shining upon their leaves, which are somewhat impatient of its direct influence. As they require more room move them on into 8-in. or 10-in. pots; so treated they will bloom from almost every shoot, producing flowers which in colour are not equalled by anything in cultivation. The above are a few hard-wooded plants particularly adapted for amateurs to grow, and will be found an acceptable addition to the other occupants of the greenhouse, which too often consist of comparatively little besides *Fuchsias*, *Pelargoniums*, *Cinerarias*, *Calceolarias*, and other soft-wooded subjects, which, however beautiful in their way, do not afford much variety.

Kitchen Garden.—Almost all spring-sown vegetables are, through the extremely backward weather we have had, at least a fortnight behind ordinary seasons; for if the seeds were sown at the usual time, they either failed to grow, or made such slow progress as to be much later in attaining sufficient size to plant out. Those who are desirous of growing a full crop of Brussels Sprouts should at once plant them out where they are to be grown. From their naturally erect habit it is not necessary to allow them nearly so much room as the more spreading Brassicas, but they must not be overcrowded or they will not be able to withstand a hard winter. This vegetable, which requires a long season to attain its full size, cannot this year be expected to grow so large as usual, yet I should not recommend their being planted nearer than 2 ft. apart each way, and where the soil is very rich and naturally well suited to the requirements of the Cabbage tribe, an additional 3 in. or 4 in. will be better. A sufficient breadth of spring-sown Cabbages should also be planted, giving them room according to their kinds, small varieties, such as *Cocoa-nut* or *Little Pixie*, will do if they be placed 15 in. apart each way, whereas those of the *Enfield Market* class should stand 18 in. asunder in the rows with 2 ft. between. Savoys should have a similar space allotted to them, according to the small or large variety grown. A few spring-sown Red Cabbages should also be planted 18 in. from plant to plant, and the rows 20 in. apart. Autumn-flowering Broccoli should also now be put out at about 2 ft. to 2½ ft. apart, if intended to come into use before Christmas; the later kinds for winter and spring should be placed 3 ft. asunder each way: so grown they will bear a much more severe winter than if less space be allotted them. With the large number of amateurs who cannot find room for all the above crops until something that has preceded them is cleared off, there is no chance but keeping the plants until the required space is at liberty in the nursery beds in which they were recommended to be pricked out a short time ago, from which they can be removed with very much less check than if allowed to remain in the seed-bed until permanently planted.

Celery.—The main crop of Celery may now be planted, choosing the first favourable opportunity when the weather is showery, for although the plants may not be so large as to be taking any harm in the nursery bed, they will receive less check from moving than if planted later when they are bigger; treat as to water as recommended for the earliest planted.

Town Manure.—The Corporation of Manchester last year commenced a system of converting the city refuse into a concentrated manure which is sold in the Corporation yard at 12s. 6d. per ton. The yard extends to about three acres, and into it is collected all the refuse and offal of the town. The cinders are separated from the ashes and serve as fuel for the steam engines engaged in the manufacture of the manure. A quantity of fine ash is first separated by sieves or riddles from the dry refuse brought to the yard. This powdery ash acts as an absorbent of the more valuable fertilising articles. Of decayed fish alone an average of about 8 tons are lodged in the yard every week. A little gypsum is used to fix the ammoniacal gases. About 70 tons per week are thus manufactured.—“Manchester Paper.”

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

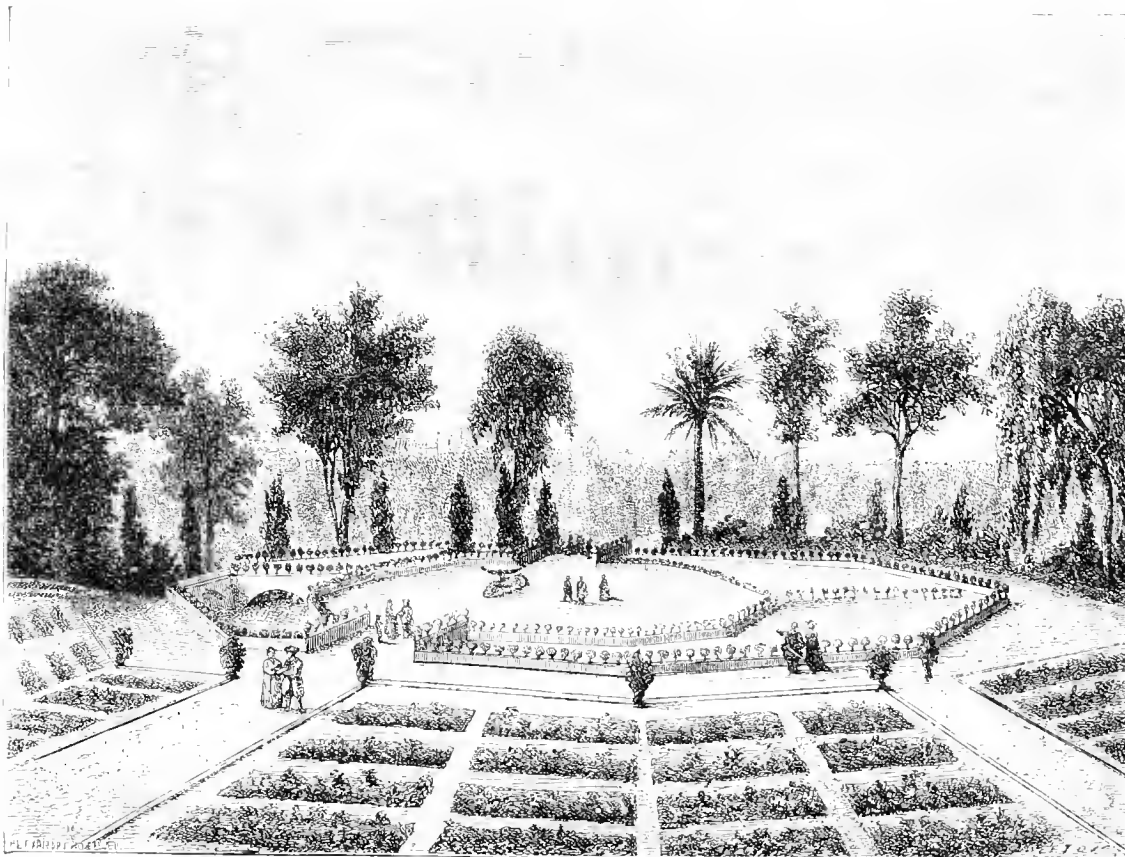
By W. DENNING.

June 18.—Shifting *Caladiums*, *Baleams*, *Amarantus*, and *Coleus* into larger pots; potting young *Primulas*, and placing them in a cold frame where they can be kept close until established. Sowing *Champion of England* and *Nonpareil Peas*, and *French Beans*; also *Legg's Melon*, *London Coleworts*, and *Incomparable Cabbage*. Planting *Asparagus* and some *April-sown Lettuces*; also planting *Celery* in trenches for main crop, and another batch of *Cauliflowers* and *Convo Tronchuda*. Putting in *Lavender* cuttings out-of-doors under a hand-light. Fertilizing *Melons* as fast as they show flower. Thinning *Onions*, *Carrots*, and other root crops.

June 19.—Potting *Stocks*, *Asters*, *Alyssums*, *Lobelias*, and *Calceolarias* for room and conservatory decoration, and shifting *Odon-*

June 21.—Shifting *Chrysanthemums* into their flowering-pots; also *Achimenes*. Repotting *Odontoglossum Halli* and *Epidendrum bicornutum*. Sowing *Negro Long-pod French Beans* and a little *Parsley*. Planting *Endive*, *Lettuce*, *Melons*, and *Gourds*; also *Celery* and *April-sown Cabbage*, and making up vacancies among *Winter Greens*. Cleaning *Cattleyas* and *Odontoglossums*. Top-dressing *Fig trees* in pots with rotten manure. Tying up *Carnation flowers*. Thinning *Turnips* and stopping *Vines*. Hosing between all growing crops, and watering recently-planted *Celery*, *Cauliflowers*, and *French Beans*.

June 22.—Potting seedling *Cyclamens*, and placing them in heat; also potting some *Violets* and *Lobelias* for indoor decoration. Sowing *Mignonette* in pots; also *Melons* and *Cucumbers*. Planting land just cleared of early *Peas* with *Snow's White* and *Cooling's Matchless Broccoli*, and setting *Neapolitan Cabbage Lettuces* on *Celery ridges*. Putting *Poinsettias* in heat to induce them to pro-



The Garden of Plants in Old Times (see p. 569).

toglossum vexillatum and *Phloxopsida*. Sowing *Syon House Cucumber*, *Chicory*, and *American Cress*. Planting *Scotch Kale*, *Pear-nought Cabbage*, *Savoys*, *Broccoli*, and *Vegetable Marrows*. Watering outdoor *Strawberries* that are swelling their fruit thoroughly, and afterwards covering the ground with short *Grass*, in order to keep the fruit clean. Nailing in shoots of wall trees, and removing all curly leaves infested with insects. Pegging down *Tropaeolums* and *Verbenas*, and staking up *Pyrethrum* flowers.

June 20.—Potting *Zinnias*, *Dianthus*, and *Celosias*, and shifting large *Heliotropes* into 10-in. pots. Potting *Musk plants* for autumn use; also *Lady Plymouth Pelargoniums*. Baskets *Oncidium splendidum* and top-dressing *Lycasto Skinneri alba*. Sowing *Shilling's Queen* and *Atkins' Matchless Cabbage*, and various kinds of *Endive*, *Lettuce*, and *Radishes*; also *Golden Ball* and *American Red-top Turnip*. Thinning *Apples*, *Pears*, and *Plums*, and watering *Apricot trees* and all the flower garden beds that are very dry. Putting in cuttings of *Show Pelargoniums* and *Mimulus* in frames, and layering *British Queen Strawberry runners* for next year's forcing.

duce a supply of cuttings. Examining *Peach trees* carefully for green fly, and sulphuring hot-water pipes in *Vineries* to ward off red spider. Syringing *Ferns* to wash off thrips, and putting paraffin on *Apple trees* to kill *American bug*.

June 23.—Blocking *Cattleya superba*. Putting *Masdevallia Veitchi* and *M. coccinea* into 6-in. pots, and basketing *Oncidium cheiroporum*, using as soil sandy peat and broken crocks. Planting out *Spiraeas*; also *Veitch's Autumn Giant Cauliflower*. Taking up *Hyalacinths*. Netting *Cherries* that are ripening, also *Strawberries*. Digging out trenches in which to plant *Cauliflowers*, and manning others intended for *Celery*. Plunging out-of-doors large plants of *Dicentra (Dielytra) spectabilis* that have been used for forcing.

Hardy Flowers.

ASTERS.—Daily waterings at the roots must be given, and sprinklings overhead morning and evening while the present hot weather lasts. Mulchings of well-decomposed manure broken up small will be found of great service, as much depends on the plants getting a good start.

COLUMBINES.—*Aquilegia cœrulea* is now in bloom in my garden; my plants of it were grown from seed, and they are all true to character. The seed was sown in the spring of 1876, and the plants potted as soon as large enough, kept in the greenhouse all the winter, and turned out into the open border early in May. The plants will be lifted early in September, repotted, and wintered as before. *A. canadensis* is a very attractive form with red flowers, which are in marked contrast to those of *A. cœrulea*, which are bluish, violet, and white. *A. glandulosa* is remarkably handsome, and has been well described as one of the most beautiful of Alpine perennials, but it requires such careful management, and so many have failed with it, that it cannot be recommended for general cultivation. *A. Skinneri* is another fine species, the flowers red, the tips golden-yellow. *A.*

do the plants much good. Those who grow Pansies in the hotter districts of the south frequently find them die off suddenly; on examination it will be found that a kind of black rot affects the stalk near the ground and passes along the shoots, and so deadly is its action that not only does the plant quickly decay, but the shoots, if made into cuttings, rarely if ever strike. Those who use Pansies and Violas for bedding purposes should, as far as possible, select examples of a close, tufty growth, as they are generally of vigorous habit; the shoots cover the ground, which is thus kept cool about the roots. Now is a good time to put in cuttings made of the young growths sent up from the roots. My bed is made up of leaf-mould, some fine loam, and very fine cinder ashes, and it is under a north wall and raised some 12 in. above the surface of the ground. In



Dracena Goldieana (see p. 50).

caryophylloides, a very fine striped variety of the common Columbine, is charmingly effective when true to character, and a mixed packet of seed will be certain to yield some fine varieties. The seeds should be sown without delay, and the seedlings carefully tended, so that they may grow strong by the autumn.

CANDYTUFTS.—The evergreen Candytufts are useful for covering steep banks of rockwork. At Slate Hill House, near Manchester, they are much used for this purpose. They root into crevices where the soil is always cool and moist, and where, in full bloom, they make a most effective display. *Iberis sempervirens* and *I. corifolia* are both used for this purpose.

PANSIES AND VIOLAS.—This is a trying time for these, especially in exposed places where the soil is open. Top-dressing should be resorted to in order that the surface soil may be rendered fine and rich for the young roots. Sprinklings overhead in the evenings

such a bed I find the cuttings strike quickly. Pansies like a gritty soil in which their roots can run freely.

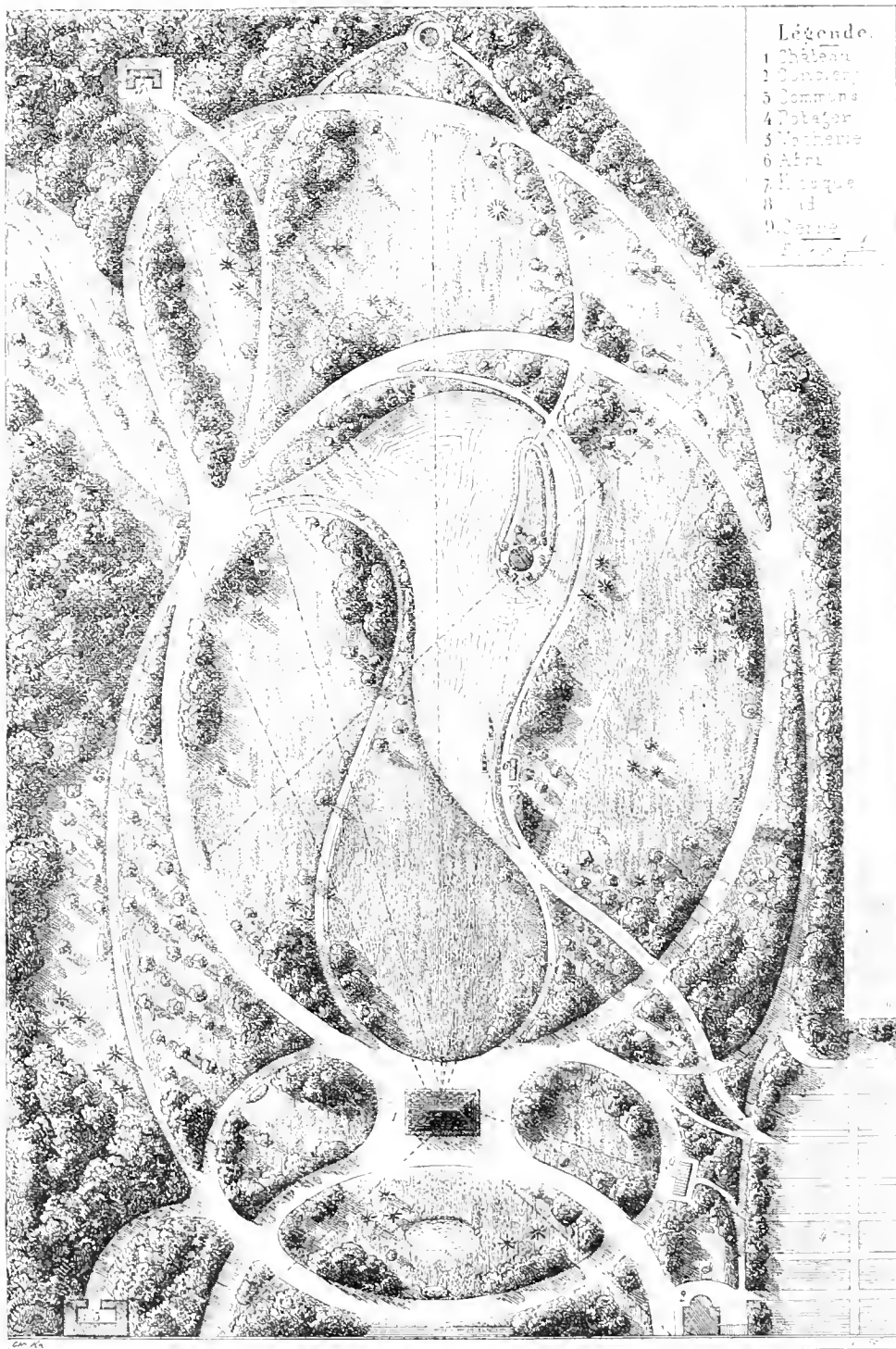
RANUNCULUSES.—In the north of England, owing to the great rainfall of the winter, which considerably deferred *Ranunculus* planting, the beds are not yet in flower, and, indeed, not throwing up their blooming stalks. A mixture of sand and manure is put on the surface of the beds to keep the soil cool and moist. It is very rarely indeed that a good bed of named *Ranunculuses* is seen in the south of England; but in the north it is a much more frequent occurrence. It is to be regretted that this beautiful flower is not more generally grown.

SPARAXIS.—A few days ago I saw in the neighbourhood of Manchester some pans of these in fine bloom. There were about twenty bulbs in a pan planted in a sandy soil, in which peat and leaf-mould had been plentifully used, and the pans had been in a cold house in

which Lilies, Chrysanthemums, &c., are grown all the winter. *Ixias*, *Colochortus*, *Babiana*s, &c., are grown in a similar way, and are very effective.

TROLLIUS EUROPEUS.—In the cool midland districts I have recently

Garden by M. André.—We gave a plan of an English garden by our first garden designer—Mr. Marnock—last week; this, one laid out by M. André, who has deservedly a high rank among landscape gardeners on the Continent. The difference between the two



Design for a Garden, by M. André.

seen this grand hardy plant in fine condition. An Oldham botanist, who is incessantly searching for new plants in that district, some time since found a form of *T. europæus* with deep orange flowers; it is a remarkably fine variety, but it is unfortunately as yet very scarce.

D.

schools will be sufficiently apparent to those who compare the plans. We may add that M. André, like ourselves, has the highest admiration for the best examples of Mr. Marnock's work, and, in conversation with the writer, lately remarked, "We have nothing in its way so good as Oak Lodge!"

THE MANAGEMENT OF CELERY.

SUCCESS in the culture of Celery may be said to consist in producing vigorous growth, without letting the plants go to seed, or bolt, to use the common term, and the whole efforts of the cultivator are usually directed to these ends, from the sowing of the seed till growth is finished at the end of the season. This success is secured by never allowing the plants to suffer a check, and we shall endeavour to point out how it may be best accomplished.

SOWING THE SEED.—Celery raised in a high temperature, and afterwards pricked out in a cold frame, and finally planted outside, is almost sure to run to seed before it is half grown, and this is entirely owing to the check received by the plants when young. The seed should be sown in fine rich soil, and it may be treated to a temperature of 60°, or less, till it comes up; after which it should be removed to a temperature of 55°, and it should never be allowed to become dry at the root, but be kept continually moist, for Celery is a moisture-loving plant. This advice of course applies to early-sown Celery; later crops can be sown in frames or sheltered places, where the plants can remain till planted out; but as a rule the main crop has to be sown early, under artificial conditions, and the above precautions are necessary. The consequence of keeping the seedlings in strong heat is that they get very long and drawn, and will not bear transplanting with safety. In a temperature of 55° they will not be overdrawn; but they must, nevertheless, be pricked out into a frame or under handlights as soon as they have made their first rough leaves. With a view to their final and safe removal to the trenches, the soil in the frame should not be too deep, otherwise many of the best roots will be lost in lifting, which may be followed by bolting soon after. Our plan is to lay 4 in. of good red soil upon a smooth, hard bottom and prick the plant into it. The roots cannot penetrate the bottom, and when the plants are taken up they come away with the balls of earth almost intact. The plants being in rows, a knife is just run along between them to sever the lateral roots, and the balls are then free. Next to these precautions in the nursery bed, water in abundance should be given, and the temperature should be high enough to keep the plants growing very steadily.

PLANTING THE TRENCHES.—These must first be prepared; whether they are wide enough to hold two or more rows does not matter very much. Those who want large heads had better, perhaps, be contented with two rows to a trench; and those who are short of room, or who prefer small heads, may have as many as six rows. Either way the trenches be well enriched with some kind of loose and quite rotten manure. Decayed leaves mixed with farmyard manure makes an excellent compost; so does the refuse material of old Mushroom beds, while cow manure rotted to blackness is the best of any. The trenches having been taken out, a dry day should be chosen for digging in the manure, and it should be thoroughly incorporated with the soil to the depth of the spade, and not simply buried at the bottom. Then the plants should be brought and planted at the same time, allowing each plant about a square foot of space to itself, and watering all thoroughly when done, and afterwards mulching the trenches with 2 in. of short Grass or rotten leaves. The advantages of mulching can hardly be over-estimated. In dry seasons it is hardly possible to keep the plants as moist at the roots as they ought to be, but mulch them thickly enough, and the soil will retain its moisture for a long while, and much labour in watering will be saved.

EARTHING UP.—Before commencing operations the soil about the roots must be examined, and if dry, it must be well deluged with water. This is a somewhat important point, as when the soil is filled in upon a dry bed it never afterwards gets properly soaked; therefore, be sure to water before earthing up, if there be the least need for it. Cultivators differ in opinion about the time to begin earthing up. As a rule, it is best to let the plants make a fair growth, and then to earth up at the rate of 4 in. at a time, but less than this rather than more, if anything. All suckers should be first removed from the collars of the plants, and the leaves should be closed in methodically and held tightly to the plants while the soil is being filled in about them. At the last operation the tops of the plants should just be left above the soil to keep up the vitality; but if hurried altogether, they will soon rot.

WINTER PROTECTION.—Unless some pains are taken to protect Celery in winter, the loss will be very serious, especially if the weather be wet. During the past winter the losses of growers were enormous, and they were particularly felt by market gardeners. We were made aware of cases in which the loss from rotting of the hearts amounted to nearly 80 per cent. Probably it would not be too much to put the loss, in private gardens, down generally at 40 or 50 per cent. after the new year. Be this as it may, all losses represent labour and material thrown away; and the question is how to prevent it, and the answer is, keep the ridges dry, keep off rain after the

plants cease growing and frost sets in. For this purpose nothing is better than light, ridge-shaped, wooden covers, which can be lifted off and on; for the cure is as bad as the disease when the shutters are left on always. About the end of November they will come into requisition, and from then till the Celery has ceased growing they should be used, and will form a defence against rain and snow, and severe frosts.—“Field.”

Planting Asparagus.—In the successful treatment of this important crop much depends upon giving the young plants a good start; in fact, if the seedling or one-year-old plants be roughly used, either in transit or removal, there will be little advance as regards time on the use of seeds instead of plants, as the ultimate progress will be all in favour of the untransplanted seedlings. I have followed the system advocated by “S. J.” (p. 453), viz., of planting one-year-old plants after they have made a considerable amount of top growth, and I find that we have fewer failures than formerly, when we used to plant immediately any signs of growth were observable. This is, however, not practicable, unless the plants are grown on the spot. We have lately planted three large beds, which were trenched 3 ft. deep, after which a heavy dressing of road-scrappings was spread on the surface; deep drills were then drawn, and the plants transferred to them at once and covered with a good coating of the same kind of sharp grit, as I find on lifting crowns for forcing that they are sounder and fuller of healthy fibres than when covered with close adhesive soil. The tops are now as vigorous as if they had not been removed, so little do they appear to have felt the check. We have for the last five years sown a small quantity of Conover’s Colossal Asparagus, and certainly the produce is finer than that which we used to cut. This I attribute partly to the variety and partly to improved culture, for even old beds of any variety may be induced to yield finer produce by encouraging and protecting the top growth after cutting is discontinued, by liberal top-dressings, and applications of liquid, and by avoiding needless mutilation of the roots.—JAMES GROOM, *Henham*.

The Garden of Plants in Old Times.—Through all the years which this establishment has existed it never appears to have had the least charm of natural beauty or simplicity. Here it is in old days as formal, barren, and uninteresting, as far as one may judge from an old engraving on p. 506, as it is at present. In all these old pictures of gardens it may readily be seen how far those who designed them were from having a single notion of the meaning of garden design. It is wall designing, walk-designing, canal-designing, &c., anything but garden design. That art was born when the first informal garden was formed or tolerated, though all the charms it has in store for us have yet to be realised one by one.

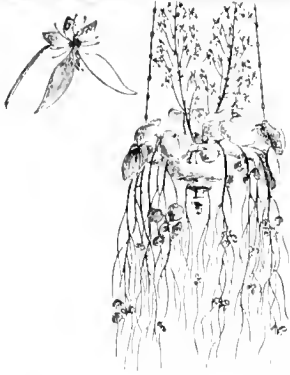
Dracæna Goldieana (see p. 507).—This fine, ornamental-foliaged plant, of which a good example was exhibited the other day by Mr. William Bull, at the Orleans House Show, is unique as regards character and aspect. It is a native of Western Tropical Africa. It is a plant of erect habit, the stems being closely beset with stalked spreading leaves, the petioles of which are of a greyish colour, and the blade yellowish-green streaked with dark green and silver-grey in alternate straight or furcate bands, the colours, as will be seen, being about equally distributed. The back of the unrolled leaves is a pale reddish-purple, and the stem, where visible at the upper joints, is of similar hue, the lower parts becoming green. It is one of the most striking of all Dracænas, and one which should find a place in all good collections of fine-foliaged plants.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

A Tomato Omelette.—Those who duly appreciate the Tomato will probably fancy they know all needful ways of cooking it; so did the writer, till he recently tasted a Tomato omelette, which is delicious. It is made by simply incorporating a few good Tomatoes (cut in not too small slices) with an ordinary omelette aux fines herbes.—V. T.

Irrigation.—The subject appointed for discussion at the usual monthly meeting of agriculturists held the other day in the Rue le Peletier, was the management and utilization of running waters. As indicative of the vast importance of this question, it is stated that if the natural waters of France were utilized in the same manner as those of Piedmont and Lombardy, 5,000,000 hectares of land could be irrigated in the place of the 100,000 now so treated, and pasture and forage would be increased fiftyfold.

Lily-white Seakale.—Early this spring this was awarded a certificate by the Royal Horticultural Society; but whether for novelty or for extra culture was not stated; if for the latter, a cultural commendation would have been more appropriate. The Committee should have known that this variety has been widely distributed by nurserymen along with the common Seakale. I have had it myself from two establishments, and in looking over the gardens at Newton House the other day Mr. Keely pointed out a great quantity of it intermixed with the old garden sort. Whether this is an accidental cross or a sport, I am unable to say, but certainly it is an excellent sort, and ought to be well looked after.—W. CULVERWELL, *Thorpe Perrow*.



Creeping Saxifrage (*S. sarmentosa*).



The Water Geum (*G. rivale*).



Ecremocarpus scaber.



Heart-leaved Houttuynia (*H. cordata*).



St. Bruno's Lily.



Roser's Sage (*Salvia Roseana*).



The May-apple (*Podophyllum peltatum*).



Allium ursinum.



Centaurea-like Rhaponticum (*R. scariosum*).



Hymenocallis fumariifolia.



Three-leaved Gillenia (*G. trifoliata*).



Long-rooted Geranium (*G. macrorhizon*).

SOME HARDY FLOWERS OF THE WEEK IN LONDON GARDENS.

HARDY FLOWERS IN LONDON GARDENS.

THE most attractive hardy flowers now to be met with in bloom are Columbines, Poppies, and numerous Irises. The dwarf blue-flowered *I. stylosa* is flowering freely. Feather Hyacinths may be found in good condition. *Eschscholtzia californica* and its white-flowered variety are blooming abundantly, and cut blooms of them are now being brought in large quantities to our flower markets, where they are used in the commoner kinds of bouquets. Several of the Alliums are now at their best, notably *A. subhirsutum*, which bears large trusses of white blossoms, and which, but for its offensive smell, would doubtless be largely grown for market purposes. Among Columbines now in flower may be named *Aquilegia glandulosa*, *A. cœrulea*, and the scarlet *A. truncata*. Various Cyclobothras are also blooming freely, the most showy being *C. pulchella*, which bears abundance of drooping, golden-yellow blossoms, and *Tovaria racemosa* bears numbers of creamy-white, Spiræa-like flowers. The showy *Collinsia*



Small bulbous Iris
(*I. Xiphium*).



Leptosiphon androsaceus.

bicolor, growing in large patches, is very effective, as are also *Limnanthes Douglasi*. Geraniums, too, are just now very showy, especially the large, purplish-blue-flowered *G. eriostemon*. *Oxalis articulata maritima* is a pretty little plant when grown in a moist soil; its flowers are of a deep magenta colour, and when produced in masses are very effective. Various kinds of Lupines are now amongst the most showy of border plants, and Larkspurs will soon be laden with blossoms. *Lithospermum prostratum* is now getting remarkably showy, its bright blue, star-like blossoms being produced in great abundance; the lavender-flowered *Veronica caucasica* is also blooming freely; as are also *Asphodels* and *Foxgloves*, both of which are just now at their best—the place for both is of course the wild garden or shrubbery. In addition to these, various *Salvias* are also flowering freely, as are likewise *Centaureas* and *Polemoniums*, and the beautifully-drooping blossoms of *Onosma taurica* are very showy. S.

SOCIETIES AND EXHIBITIONS.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.

JUNE 15.

THIS was a most attractive exhibition, and one that seemed to be fully appreciated, for throughout the afternoon and evening both the tents and the gardens were thronged with visitors. The show itself was rendered more interesting than usual by the addition of a long stage of fruit, of which none has been shown before in these gardens this year. A group of new and rare plants, contributed by Messrs. James Veitch & Sons, contained numerous interesting examples of Fly-trap plants, exhibited under bell-glasses, which proved a source of great attraction. The grand bank of Orchids, too, was also greatly admired; it was without doubt the finest display of these lovely plants that has been seen for a long time. The examples of *Odontoglossum vexillarium*, shown by Mr. B. S. Williams, Holloway, and Mr. Denning, gardener to Lord Lodesborough, were marvels of good culture, as were also the neat groups of *O. vexillarium*, edged with *Adiantum gracillimum*, from Mr. Bull. In Sir Trevor Lawrence's collection, one specimen of *Masdevallia Harryana*, noticed elsewhere, was simply magnificent; it bore over thirty brilliant purple blossoms. Mr. Denning's group contained a well-flowered plant of the rare *Odontoglossum cirrhosum*. Among fruit the remarkable examples of *Muscats*, shown by Mr. Wilmot, Isleworth, were the admiration of Grape growers.

Certificates.—These were awarded in large numbers, but as they were not attached to the plants to which they were given until late in the day, we are unable to do much more than mention the names. Foremost on the list stand *Rhododendron Duchess of Edinburgh* (Veitch), a variety with long, tubular, crimson blossoms; *R. Maiden's Blush* (Veitch), a free-habited kind with white, rosy-tinted blossoms; *Acalypha Macfeeana* (Veitch), a sort with large bronze leaves blotched with fiery-orange-erimson; *Anthericum Veitchi* (Veitch); *Azalea indica imbricata* (Veitch), a double white and pink Balsam-flowered kind well worth attention; *Liparis elegantissima* (Veitch), *Croton Bismarcki* (Ball), a handsome form from the South Sea Islands. *Aquilegas*—Hybrids of *cœrulea*, *californica*, and *pyrenaica* (Douglas); Show *Pelargoniums*—*MaeArthur*, *Clara*, and *Bertie* (Turner); also *Zonales*—*Tom Bowling*, *Silvio*, and *Leveson-Gower* (Burley); of the silver-edged type were *Boadicea*, *Mrs. Hanbury*, *Mrs. J. Quennell*, and *Charming* (Burley); *Pelargoniums* *Prince of Wales*, *Prince Teck*, *Beauty of Oxtou*, and *Queen Victoria* (Bull); *Pelargonium Dr. Masters* (Williams), a free-habited kind with dark maroon semi-double flowers, a capital market plant; *Pelargoniums* *New Life* and *Purple King* (Cannell); *Senecio fl.-pl.* (Cannell), a dwarf-growing plant with double, whitish, button-like blossoms. *Mimulus* (E. G. Henderson), for excellence of strain. In addition to these the following also received certificates, namely, *Tropæolum Norwood Gipsy*, *Pelargonium Empress of India*, *Aralia ornata*, *Croton splendidum*, *Cyathea Dregei*, *Lomaria Dalgairnea*, *Cycas media latissima*, *Begonia Gloire de Nancy*, *Odontoglossum vexillarium roseum*, *Gymnogramma Novelleri*, *Pteris ensiformis variegata*, *Anthurium Warvequianum Veitchi*, *Dicksonia Besteriana*, *Coleus pictus*, *Aurancaria excelsa alba-spica*, *Zamia Roezli*, *Dieffenbachia Chelsoni*, *Croton Regina* and *C. hybridum*, *Petunia Madame Hengest*, Show *Pelargoniums* *Venus*, *Forget-me-not*, *Captivation*, and *Silvio*, Fancy *Pelargoniums* *Mrs. Pope*, *Henry King*, *Enterprise*, *Despot*, *Artist*, *Crusader*, *Goliath*, *Martyr*, *Medora*, *Evelyn*, and *Covenant*.

New and Rare Plants.—Of these, excellent groups were shown by Messrs. Veitch & Sons, Mr. William Bull, and Mr. B. S. Williams. Messrs. Veitch & Sons had an *Anthurium Veitchi* furnished with shining green and bronze leaves nearly 3 ft. in length; also *Croton Disraelii* in excellent condition, its bright orange foliage associating well with that of Ferns, *Aralias*, and Palms; the bright yellow *Oncidium concolor*; the crimson and bronze *Acalypha Macfeeana*; *Masdevallias* of various kinds; and other attractive plants. The same firm also showed the beautiful, pure white, wax-like *Lapageria alba*, *Rhododendron Taylori*, *R. Maiden's Blush*, and the bright crimson tubular-flowered *R. Duchess of Edinburgh*. In Mr. Bull's group we noticed finely coloured plants of *Croton Disraelii*, *C. Mortii*, *Dracæna Goldiana*, and some attractive *Pelargoniums*, named *Beauty of Oxtou*, *Princess of Wales*, and *Queen Victoria*. In this collection we also noticed a well-grown plant of *Paulinia thalictrofolia*, *Croton triumphans*, and a beautiful rose-coloured variety of *Odontoglossum vexillarium*: This group which was backed up with Tree Ferns, *Cycads*, and Palms was very effective. Mr. B. S. Williams had fine coloured plants of *Dracæna Baptistii* and *D. amabilis*, and examples of new Palms, and *Aralias*, the whole being relieved by brightly flowered plants of *Azaleas*, *Ixoras*, and *Scarlet-spathed Anthuriums*. Messrs. John Laing & Co. had a group in which were *Dieffenbachia Bausei*, some choice *Caladiums*, and other plants. A group of new and rare plants also came from Messrs. Rollisson & Sons, Tooting. Mr. Wills contributed baskets of his new seedling *Dracænas*, each containing three plants, and thus shown they were very effective.

Stove and Greenhouse Plants.—Collections of these were numerous, and contained many well-flowered specimens. Messrs. Jackson & Son, Kingston, staged capital plants of *Erica Cavendishi*, *Statice profusa*, and *Aphelexis macrantha purpurea*. Mr. Williams exhibited, amongst others, *Allamanda grandiflora* and *Ixora Prince of Orange*. Mr. Donald, gardener to J. G. Barelly, Esq., Knott's Green, Leyton, had good plants of *Hederoma tulipifera*, *Erica tricolor Wilsoni*, *Clerodendron Balfouri*, and a well-flowered example of *Ixora Fraseri*. Mr. Wheeler, gardener to Sir F. Goldsmid, had neatly-grown plants of *Heaths*, *Azaleas*, *Everlastings*, and *Pimeleas*; and Mr. Child, gardener to Mrs. Torr, Grand Hall, had good examples of *Erica depressa*, *Phenocoma prolifera* Barnesi, a profusely-bloomed specimen of *Polygala Dalmaisiana*, and a *Stephanotis* well studded with fresh white blossoms. Mr. Legg, gardener to J. S. Ralli, Esq., had well-flowered plants of *Clerodendron Balfouri*, *Allamanda grandiflora*, and *Statice profusa*; and Mr. Peed, Roupell Park Nurseries, Norwood, had excellent examples of *Bougainvilleas*, and a remarkably well-grown plant of *Erica Victoria grandiflora* thickly studded with bright rosy-pink blossoms. A well-flowered collection of *Heaths* came from Messrs. Jackson & Sons; and Mr. Legg also exhibited neat little plants of *Erica obbata*, *E. Candolleana*, and *E. Paxtoni*. A capital collection of *Dracænas* came from Mr. W. Bull; amongst them were examples of the spotted-leaved *D. Goldiana* and the narrow-leaved *D. triumphans*. Mr. Legg also showed a good collection of *Cordylines*, *Dracænas*, and other fine-leaved plants. Mr. C. Rann, gardener to J. Warren, Esq., had fine examples of *Crotos*, *Palms*, and *Dasyliorions*. Mr. Child had likewise well-coloured plants of *Crotos*, *Anthuriums*, and *Pandanads*. Mr. Donald furnished the graceful *Croton angustifolium*, *Cocos Weddelliana*, and a very large healthy specimen of *Pandanus elegantissimus*. Mr. Williams showed six gigantic specimens of *Palms*, *Pandanads*, and *Crotos*, also Ferns, amongst which were fine examples of *Gleichenias*, and the Bird's-nest Fern (*Asplenium Nidus*). Ferns also came from Mr. Rann, Mr. Ley, and Mr. Donald, who had a fine specimen of *Davillia Mooreana*, *Adiantum cardiochloenium*, and *Dicksonia antarctica*. Mr. Child had a well-grown plant of *Gleichenia Mendelli*.

Show and Fancy Pelargoniums.—These formed one of the principal features of the Show, there being upwards of a hundred specimens of them staged. The best half-dozen Fancies came from Mr. G. King, gardener to R. Few, Esq., who had *Roi des Fantaisies*, *Fanny Gair*, and others in excellent condition. Mr. James, Isleworth, had good plants of *Princess Teck*, *East Lynn*, and *Mirabile*. In the nurserymen's class, Mr. Turner showed finely-flowered examples of *Marionette*, *Excelsior*, and a light pink-shaded variety named *Nelly Fordham*. Of show varieties, Mr. Turner exhibited well-grown plants of *Highland Lassie*, *Claribel*, *Pompey*, and *Ruth*, fresh and profusely flowered. Mr. G. King exhibited well-flowered plants of *Hermit*, *Beauty of Kingston*, and *Exhibitor*; and in Messrs. Dobson's group were finely-blossomed plants of *Luna*, *Loveliness*, and a maroon-spotted kind, named *Favourite*, which was greatly admired. The same exhibitors also had good plants of fancy kinds not being so stiffly trained, as is too commonly the case. Mr. James had excellent plants of *Prince Leopold*, *Prince of Denmark*, *Mary Hoyle*, and *Snowflake*. Mr. Burley, Brentwood, showed a collection of Mr. Postans' Zonal and Variegated-leaved Pelargoniums amongst which we noted the brilliantly flowered kind named *Tom Bowling*; *Leveson Gower*, a beautiful salmon-coloured kind; and several good variegated varieties with white, salmon, or pink flowers. Mr. Turner exhibited baskets of new Pelargoniums, the first noticeable amongst which were *Silvio*, a bright crimson variety, with dark maroon upper petals; *Enterprise*, a large, well-formed rosy flower, with the upper petals deep velvety crimson, and white throat. Mr. Williams showed well-grown plants of his new Pelargonium *Dr. Masters*, which appears to be admirably adapted for decoration as well as for supplying cut blooms. Mr. Catlin, Finchley, showed half-a-dozen large Zonal Pelargoniums, amongst which *Coeur*, a brilliant scarlet variety, appeared to be an excellent kind for pot culture, as did also the pink-flowered *Mrs. Pearson* and the salmon-coloured *Mrs. Catlin*.

Orchids.—These were unusually attractive. The premier prize in the nurserymen's class was awarded to Mr. Williams, Holloway, in whose collection we noted a pan of *Cypripedium barbatum superbum*, with over fifty well-formed slippers; *C. niveum*, with nearly forty flowers; *Orchis foliosa*, with twenty spikes of purplish-lilac blossoms; and a magnificent plant of *Odontoglossum vexillarium*, bearing forty fully-expanded large and delicately-tinted blooms. Mr. Morse, Epsom, also had a good collection. The first prize in the amateurs' class was awarded to Mr. Denning, gardener to Lord Lonsborough, who had, amongst others, a *Laelia purpurata*, bearing some twenty large pure white-petalled and rich purple-lipped flowers; and *Odontoglossum vexillarium*, with nine gracefully-drooping spikes, each furnished with from eight to twelve flowers; *Dendrobium Bensoniae*, bearing twenty thickly-flowered pseudo-bulbs; and a good plant of the rare *Odontoglossum cirrhosum*, furnished with three long, pendent spikes, studded with beautifully spotted blossoms. Sir Trevor Lawrence showed, besides the *Masdevallias* already referred to, a remarkably fine plant of *Odontoglossum Phalenopsis*, over 2½ ft. in diameter, bearing scores of large, butterfly-like, white and pink-coloured blossoms. The same collection also contained examples of *Cattleya Warneri* in very fine condition, one plant bearing thirteen remarkably large blossoms. Mr. Hill, The Poles, Ware, showed a fine plant of the rarely-seen *Cologyne Lowii*, bearing six long flower-spikes hanging gracefully over the edges of the pots. Mr. Rutland, gardener to the Duke of Richmond, showed a specimen of *Brassia verrucosa*, and a plant of *Cattleya Mossiae magnifica* bearing fifteen large, finely-coloured blossoms. A miscellaneous group of Orchids came from Mr. Ollerhead, gardener to Sir H. Peck; amongst them were well-flowered plants of *Odontoglossum Alexandræ*, *Cypripedium barbatum*, *Cattleya Mossiae*, *Aerides affine roseum*, *Dendrobium giganteum*, and *D. Dalhousianum*; these were tastefully backed up by *Palmis*, *Ferns*, and other fine-foliaged plants. Roses in pots were furnished by Messrs. Paul & Sons, Cheshunt; amongst them were good examples of *Souvenir d'Elise*, *Celine Forestier*, *Juno*, *Madame Margottin*, *Laelia*, and other good sorts, all of which bore abundance of fresh and well-coloured blossoms.

Cut Flowers.—The most attractive of these were some boxes of *Roses* shown by Mr. Chard, Clarendon Park, Salisbury, amongst which were good blooms of *Souvenir d'un Ami*, *Maréchal Niel*, *Celine Forestier*, and *Lamarque*. Mr. W. Bone, Havering Park, Romford, had good trusses of *Maréchal Niel*, as had likewise Mr. James Bolton, Combe Bank, Sevenoaks. Mr. Soder also showed cut *Roses*. Mr. Douglas exhibited flowers of stove and greenhouse plants in good condition, as did also Mr. Bones, Mr. Morse, and Mr. Bolton. Blooms of *Pyrethrums* came from Mr. Roberts, Peterborough House, Fulham, and a miscellaneous collection of hardy herbaceous flowers were furnished by Mr. Morse, Epsom, noticeable amongst which were good spikes of *Feather Hyacinths*, *Lilies*, *Iris*, and *Saxifrages*. Mr. Douglas had collections of hardy flowers, amongst which were good trusses of *Squills*, *Statice*, *Spiraea palmata*, and various *Columbines*. Mr. Wheeler had also good examples of hardy flowers. Messrs. E. G. Henderson were awarded a certificate for seedling *Mimulus*, the blooms of which are very large, and embrace nearly every shade of colour. The prizes offered for groups of wild flowers brought forward three competitors, the principal one being Mr. J. Green, The Poles, Ware, who had four large boxes filled with really handsome flowers, amongst which were large trusses of the white *Campion* (*Lychnis diurna*), *Periwinkle*, *Sweet Briers*, *Welsh Poppies*, *Forget-me-nots*, *Honeysuckles*, *Butterfly Orchis*, and large-flowered *Mimulus* gathered from the banks of the Lea.

Miscellaneous Plants.—Mr. Ware, Tottenham, showed plants of a handsome new *Pink*, called *Newmarket*, a kind which bears rosy-pink, well-formed double flowers, and one which is likely to be largely

grown for market purposes, owing to its adaptability for forcing. A new bedding *Viola*, named *Freedom*, came from the same exhibitor. It appears to be free-growing and floriferous, and the flowers are of a deep bluish-purple, with a dark centre. *Bouvardia Humboldtii corymbiflora*, a kind resembling *B. jasminiflora*, only that the flowers are three times as large, came from Messrs. E. G. Henderson & Sons, who also showed a new double *Petunia*, named *Madame Hengest*. Mr. Cannell showed specimens of his *Pelargonium New Life*, and small plants of *Senecio fl.-pl.*, a double white-flowered kind of a useful character. Messrs. Jackson & Sons contributed well-grown plants of the beautiful pyramidal *Saxifrage* (*S. nepalensis*), which attracted much attention. Messrs. Laing & Co., Forest Hill, sent a group of new *Begonias*, amongst which a kind called *B. delicata* had creamy-salmon-shaded blossoms, and associated with it were a fine orange-crimson-flowered kind, named *Messange de Louvre*, and a violet-purple-flowered *Triteleia*.

Fruit.—This was fairly represented, and the quality of all exhibited was exceedingly good for the season. Mr. Miles and Mr. Bones showed collections of fruit. The former exhibitor had splendid brown Turkey Figs, well-coloured bunches of *Black Hamburg* and *Forster's White Seedling Grapes*, *Violette Hâtive Peaches*, *Elruge Nectarines*, and *black Circassian Cherries*. Mr. Bones had *Muscats of Alexandria* and *Black Hamburg Grapes*, two *Melons*, and good *Violette Hâtive Peaches*. Mr. Miles, gardener to Lord Carington, Wycombe Abbey, showed an excellent example of *Baroness Rothschild Pine*; and Mr. Douglas had a good *Queen*; good examples also came from other exhibitors, but they were scarcely ripe. Mr. Alchurst, gardener to S. Copestake, Esq., Kentish Town, had two well-ripened *Queens*, which, considering they were grown so near London, deserved great praise. *Grapes* were exceedingly well shown; Mr. Grimmett, gardener to J. Wilmot, Esq., Isleworth, sent three excellent bunches of *Muscats of Alexandria*, which had very large berries, of a fine amber colour. The same exhibitor also staged a basket of *Muscats*, which were certainly the best we have seen anywhere this year, and in each case the first prize was awarded. Mr. Douglas had a basket of *Canon Hall Muscats* of a very meritorious character; the berries were remarkably large, and of a fair colour for the season. Mr. P. Edwards, gardener to Mrs. Trestrum, Fawley, Hants, sent very large and symmetrical-shaped bunches of *Muscats of Alexandria*, which were fine examples of good culture, the only fault being that they were not ripe. Mr. R. Sowerby, gardener to Earl Macclesfield, staged three excellent bunches of *Foster's Seedling*, the berries of which, though not over large, were well-ripened, and covered with a fine bloom. The best *black Grapes* came from Mr. W. Bones, and Mr. Douglas had good bunches of *Black Hamburg*, bearing large and well-ripened berries of excellent colour; Mr. Bolton sent three good bunches of *Black Prince*; and Mr. Grimmett had good examples of *Madresfield Court*. A basket of well-ripened *Black Hamburgs* also came from Mr. P. Kay, Finchley. Of *Peaches* there were six dishes shown, the best of which came from Mr. Sowerby, Shirburn Castle, Oxon, who showed *Alexandra Noblesse*; and Mr. Cornhill, gardener to J. S. Virtue, Esq., had finely-coloured fruits of *Royal George*. Eight dishes of *Nectarines* were shown, amongst which were some finely-ripened fruit of large size; the best came from Mr. G. Holliday, gardener to J. Norris, Esq., Bletchley, who furnished bright, well-coloured examples of *Violette Hâtive*; a dish of the same variety also came from Mr. Sowerby. Mr. Cornhill had well-ripened fruits of *Pitmaston Orange*, and Mr. Miles good examples of *Elruge Melons* were shown in good numbers; Mr. Mortimer, gardener to Major Storer, Reading, had a fine fruit of *scarlet-fleshed Duke of Edinburgh*, weighing 5 lb. 4 oz.; and Mr. Gilbert, Burghley, showed a prettily-netted kind weighing 4 lb. 13 oz.; Mr. Gilbert also showed excellent-flavoured fruits of *Victory of Bath* and *Excelsior*. Mr. Miles had good examples of *Read's Scarlet Flesh* and *Coe's Golden Gem*. Four dishes of *Cherries* came from Mr. Miles; they consisted of well-coloured fruits of the *Black Circassian* and *Elton*. Mr. Worthing, Chadwell, had good dishes of *Premier* and *La Grosse Sucrée Strawberry*. Mr. Woodbridge and Mr. Roberts showed well-ripened pods of *Vanilla*, and Mr. Douglas furnished some good *Tomatoes*.

A list of the prizes awarded on the occasion will be found in our advertising columns.

QUESTIONS AND ANSWERS.

Wash for Rose Trees.—Can any of your readers kindly give me the recipe for a good, safe wash to protect Rose trees from blight, insects, &c.? I shall also be much obliged to any one who would inform me whether the following decoction would prove injurious:—Chips of Quassia, ½ lb., soft soap, 1 lb., water, 1 gallon, boiled together for twenty minutes, then strained and applied when cold.—MARÉCHAL NIEL.

Fertilising *Dielytra spectabilis*.—Will some of your readers kindly tell me (1) whether *Dielytra spectabilis* ever seeds in this country; and (2) how its fertilization is effected? The structure of the blossom is very curious. I suppose insects are the fertilizers, but the only aperture by which they could get at a sweet secretion in the side of the flower near the stigma is not present in all the specimens which I have examined.—FRANKLIN T. RICARD, *Lyme Regis*.

Beans and Wireworm.—Finding my Dwarf French Beans and Scarlet Runners come up very badly, I rooted up a few with a stick and found that most of the Beans had what I believe is called wireworm in them. What is the best remedy against such destructive pests? Will soaking the seed for a few hours in paraffin be efficient, or would digging in soot be of any use?—C. D., *Uxbridge*. [You might try both remedies, and we shall be pleased to hear with what result. Slices of Potato or Lettuce stems buried an inch or so under the surface of the ground and examined daily form good traps, and some have found salt to be a good remedy for wireworm.]

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SATURDAY, JUNE 23, 1877.

[Vol. XI.]

"This is an art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

THE ABELE OR WHITE POPLAR.

(POPULUS ALBA.)

ABELE is said to be derived from Abeel, the Dutch name of this Poplar, which is also said by some to take its name from the city of Arbela, in the plains of Nineveh, near which, on the banks of rivers, it was at one time plentiful. It is supposed that this is the same tree as that mentioned in the Bible as Abel-shittim or Shittim-wood. The name White Poplar, as may be naturally inferred, is applied to it on account of the white and woolly under-surface of the leaves; its bark, too, except when old, is white and very smooth. It is probably truly indigenous in eastern and southern England, readily propagating itself by means of seed and suckers. The wood is white, soft, light, and very tough; it is used in this neighbourhood for bent ware, and made into various kinds of hoops for tubs, pails, and ship's masts, &c.; the timber is sawn into boards and strips from three-eighths to five-eighths of an inch thick; it is then steeped and steamed to admit of its being bent with ease and without splitting. It is also made into corn shovels, bottoms of tubs, pails, corn, and other measures, and also used in cheap cabinet and turnery work. I ought, too, to add that it is used extensively for railway carriage break-blocks, on account, I suppose, of the non-combustible character of its wood, which will bear almost any amount of friction without igniting; and, moreover, it is very durable under friction. I know, as a fact, that it makes bad firewood; it is hardly possible to make a good blaze of it. As a timber tree it is classed amongst inferior kinds, but it is the best of all the Poplars; at least it is preferred to any other kind in this locality. It is worth from 1s. to 1s. 6d. per ft., but the timber must be sound, clean, and of large dimensions to realize that price; smaller-sized and ordinary quality trees sell at from 10d. per ft. to 1s. per ft. The Black Italian Poplar (*Populus monilifera*) is used for similar purposes as the Abele; it is, however, a coarser tree with a more branching habit, and, as a rule, it does not cut up so clean and free from small knots as the latter, neither is its wood so white; it is not in such request for bent ware as the Abele, and in consequence it is hardly worth so much per foot in the market; these Poplars are both extraordinarily fast growers in moist, heavy land. The Abele exhibits a highly ornamental aspect in the landscape, particularly in spring, when the foliage is unfolding its whiteness, presenting a striking and pleasing contrast when associated with darker-foliaged trees. It is also a most distinct and effective tree, owing to the whiteness and smoothness of its stem exhibiting a glittering appearance, particularly during sunshine, when its bark looks almost as bright as polished silver. In the Oak coppices on the clay lands on this estate it is plentiful; numbers of young plants of it crop up from self-sown seed usually after a cutting of underwood; it is considered as an intruder, but as it adds much beauty to the otherwise monotonous colour of the Oak woods, it is allowed to grow in limited numbers where it does not injure or interfere with the growth of the Oaks. Allusion was made in the last number of the "Journal of Forestry" to the remarkably large examples of this tree in Longleat Park. Since these remarks have appeared I have carefully measured twenty of the largest specimens, of which the average sizes are as follow:—Length of stem up to the crown, 60 ft.; girth at 5 ft. up, 12 ft. 3 in.; girth at 20 ft. up, 10 ft. 4 in.; girth half-way up, 9 ft. 10 in.; contents of each tree, including the bark, 362 ft.; contents of each tree, exclusive of the bark, 303 ft.; height, from 80 ft. to 125 ft. The largest tree, which is perfectly sound, girthed 14 ft. 4 in. at 5 ft. up the trunk, 11 ft. 7 in. at 20 ft. up, and 11 ft. 2 in. at 30 ft. up (or half-way), the stem being just 60 ft. up to the crown, and without a branch or break; it is 110 ft. high, and contains 467 ft. of timber with the bark, or 387 ft. under the bark. I have allowed nothing for the tops, some of which are large, and

contain a quantity of measurable timber, but to allow an average of 50 ft. for each top would be considerably below the actual measurement. These twenty magnificent trees are nearly all sound; some few are slightly damaged in their tops through rough winds and dead branches decaying, otherwise their stems are pictures of health and soundness. Twelve out of the twenty of their colossal butts measure from 60 ft. to 80 ft. up to the crown, with hardly a branch on their entire length. The soil in which they are growing is a strong hazel loam, the subsoil being Kimmeridge clay; they occupy a rising or hanging piece of ground called The Grove, nearly in the centre of the park.

GEORGE BERRY.

Longleat.

NEW AND GOOD AURICULAS.

As Auriculas continue to engage much attention, your readers may wish for a few more notes of new and beautiful varieties exhibited at the recent shows of the National Auricula Society. 'Trail's Prince of Greens is a very striking flower, deep green and most pure in the edge, a very black body colour, and a dense, smooth paste; the eye, however, is sadly pale and cold, but still, the worse feature is the sharply-pointed petal, which the old florists used very descriptively to term "cat-eared." Nevertheless, it is a bright and telling variety. Whether it was the effect of heat or not I cannot say, but the foot-stalks of the pips were much too long and weak to hold the truss together. Talisman is another deep green edge, with black body colour and a lemon eye; every quality was good, nay, first-rate, except that the flower was cupped; this, however, may have been the effect of the cold, sunless weather in March and April. Turner's Arabella pleased me well; it is a white edge with a maroon body colour, a combination not often found; it is exceedingly circular in outline, and has a glorious golden tinge; its weak point is the paste, which is not as smooth as could be desired. Fanny Crossland is a very lovely white edge with lively blue body colour, decidedly a step in the right direction. It did not strike me as being so good as Mr. Simonite's other grand seedling Frank Simonite. The flowers were young, and I fear that the body colour as it grows old will usurp more than its proper share of room. I once raised a seedling singularly like Fanny Crossland, but was obliged to discard it for this fault. Among the selfs Master Hole is worthy of mention as being admirably dark, almost black in colour; it would, indeed, be hard to find fault with it if it were not that the paste is very scallop-shaped. Peacemaker is a bright-looking grey edge, with a good black body colour; it is one of a class in which we have plenty of good examples; but still it deserved the first-class certificate of the National Auricula Society, which was awarded it. Strange to say the same plant was passed over by the Floral Committee of the Royal Horticultural Society on May 2, and a first-class certificate was given to Sarah, a self which, in my opinion, was not worth the pot in which it was growing. It had distinctly Alpine blood in it, having two shades of body colour, and hardly an apology for paste. The Royal Horticultural Society is not likely to enhance the value of its certificates for florist's flowers by making such a blunder as this, and I cannot help imagining that Mr. Turner must think more highly of his Peacemaker, which has the certificate of the National Auricula Society, though passed over by the Royal Horticultural Society; than of Sarah. I cannot omit mention of the new class of edged or laced Alpines, shown by Mr. R. Dean, of Ealing. They greatly pleased and surprised me. I am no lover of Alpines; but the class of which Mr. Dean is the fortunate originator has much of the quiet grace and elegance of the true-edged Auriculas, without any of that staring, self-asserting look, which I so much dislike in the true Alpines. Mr. Dean's plants have a tolerably broad and very clearly defined border or lace round every petal; and there is considerable variety in the body colour. If he only succeeds in filling the tubes up to the surface with the anthers, and in getting rid of a certain slight pentagonal ridge in the centre of the flower, I make no doubt whatever that a brilliant future is in store for this class of plants. I would gladly grow a collection of them, while I would not admit an Alpine.

Cloghran, Co. Dublin.

FREDERICK TYMONS.

PERENNIAL WALLFLOWERS.

I AM indebted to the Rev. Harpur Crewe for some interesting additions to the few well-known forms of this family of hardy plants hitherto grown here. With better fortune than has fallen to my lot, Mr. Harpur Crewe has succeeded in securing some hybrids by means of crosses with the common Wallflower and certain perennial varieties. I have often tried to secure fertile seed from one of the best garden varieties (*Cheiranthus Marshalli*) by using pollen of yellow Wallflowers, but invariably without success, and I have concluded that *C. Marshalli* at least is a barren variety. Mr. Harpur Crewe has secured seedlings from *C. longifolius*, *C. mutabilis*, *C. helveticus* (*Erysimum helveticum*), and others that are little known in cultivation. A hybrid of *C. mutabilis* has flowers of small size that open pale lilac and deepen to a rosy-magenta hue. This gives a colour unusual in hardy spring flowers, and therefore will prove an acceptable variety. A hybrid between *C. Cheiri* and *C. longifolius* has flowers of medium size, and in colour rosy-bronze, a novel hue; this appears to have a robust perennial habit. A similar hybrid has flowers of the same colour, but the habit appears to partake more largely of the biennial Wallflower. A hybrid named *C. Sermoneri*, the result of a cross between *C. Cheiri* and *Erysimum helveticum*, is a diminutive yellow Wallflower, evidently too small to be useful as a decorative plant, but, nevertheless, an interesting variety. A very pleasing kind having semi-double flowers of a bright yellow tint, originally found in a cottage garden, is included amongst flowers and foliage which I have received; the spikes of bloom are small, and in the centre of each flower is a small, hard body of petals which, on being examined, is found to be a continuation of the stalk or branch, a feature which often occurs in Double Stocks—notably in the White Giant Brompton. In this Wallflower when the outer petals are shed, the small, hard point remains at the extremity of the branch. Of course, this is unfertile, but the plant is perennial as far as habit is concerned.

Through Mr. Harpur Crewe have also come some kinds raised by Mr. Ellacombe under the name of *C. Bocconi*. One of these has narrow-petaled flowers, of a bright yellow tint, borne on compact spikes, and evidently perennial in habit; also a variety that has narrow-petaled flowers of a brownish-yellow colour; this seems closely to resemble the Wallflower found on old walls. Another variety from Mr. Ellacombe is named *C. scoparius*, a kind indigenous to the island of Teneriffe, and therefore it is not surprising to find that it is somewhat tender. To Colonel Trevor Clarke is due the merit of having raised a hybrid from *Cheiranthus alpinus* and *C. Cheiri*; this has flowers of a pale yellow-buff colour, the edges of the slightly-crumpled spikes being thin and the foliage small. Perhaps few of these kinds will possess interest with cultivators, except in the case of those who possess a strong liking for hardy plants otherwise than merely for their decorative value; none in this respect would appear to excel the rich orange *C. Marshalli* or the pale yellow *C. ochroleucus*, so common in gardens. *C. Marshalli* has the reputation of being the result of a cross between *C. ochroleucus* and an annual orange *Erysimum*; whether two such distinct species would produce fertilised seed seems a doubtful point, but it is evident that *C. Marshalli*, although thoroughly hardy, does not possess that strong perennial constitution found in *C. ochroleucus*. *C. Marshalli* does not make wood so freely, is less easily propagated, and is less frequently met with. *C. Delabaynus*, a variety that is not unknown in the trade, is evidently a hybrid from *C. ochroleucus*, but the flowers are of a dull purplish-buff colour, and by no means attractive.

All these perennial varieties prefer dry and slightly elevated positions during winter, but like a cool, moist soil in summer. Propagation necessarily is by means of cuttings, but it is often found that by top-dressing with fine soil the summer wood is induced to root freely, and then in autumn the production of a good stock is easily accomplished. Cuttings should be taken off just as the plants are passing out of flower, put in under a hand-light and treated as Pink pipings usually are until rooted. Any of the biennial or Wallflower varieties may be propagated freely from seed, but varieties which it is desirable to perpetuate as distinct forms should be propagated by cuttings. Some of the old double Wallflowers are

found here and there, but rarely in what are called modern gardens; the large yellow and the bronze-red are the most abundant, but the old double-black seems to be quite gone out of cultivation. I have not seen this for many years. Of the varieties of the single Wallflower enough has been written from time to time, but these will live and flourish when myriads of present favourites have passed into oblivion.

A. D.

Early Summer Flowers.—According to present arrangements, early summer the most enjoyable season of the year, finds our flower gardens in a state of transition between spring gardening and the more gorgeous display of the late summer months; both displays are effective in their respective seasons, and when not overdone are usually satisfactory, that is, if subjects suited to the seasons be chosen, but it is by no means uncommon to find many plants recommended in works on spring gardening as being thoroughly suited for an early spring display, which in even ordinary seasons have no chance of getting into full bloom, much more of being on the wane, before they must be rooted up. For this reason I have lately adopted the plan of using only early flowering bulbs and plants, such as *Alyssums*, *Aubrietias*, *Primroses*, *Wallflowers*, &c., that can be depended on to give at least two months' bloom, in flower beds that must be cleared by a certain time, and of filling up mixed borders with *Collinsias*, *Silenes*, and such plants as are only coming into full beauty when the others are cleared off. We have now (June 18) a showy border of *Delphinium formosum* and *Roses*, associated with these early summer flowers, and large masses of *White* and *Pheasant-eye Pinks*. From these we can cut any quantity of bloom for flower baskets. Large clumps of *Tritomas* and *White Lilies* are just now opening their blossoms; in fact, from the earliest *Snowdrop* until the frost cuts down the latest *Tritomas*, there is always something from which to cut. It is, in short, not the use but the abuse of summer flowers that banishes real gems from our gardens; but, be this as it may, the mixed border provides a refuge for many beautiful plants that do not fall under the title of either spring or summer bedders, and should form both an interesting and useful adjunct to every garden.—JAMES GROOM, *Henham*.

Rhododendrons in Ordinary Garden Soil.—The experience of Mr. Beecher is entirely consistent with my assertion that the *Rhododendron* will succeed best in good garden soil, which in Long Island is a light, rich, alluvial loam. The soil of Mr. Beecher's country place we understand to be heavy clay. The *Rhododendron* has a large number of small fibrous roots, which eagerly enter into open, friable soil, and which are repelled by a stiff, hard clay. To make the latter resemble the former, there must be a mixture with it of some light material. For this purpose peat is good, because it contains some vegetable matter. It is not surprising that plants taken from the friable soil of Long Island, or the peat beds of England, should languish in clay. *Rhododendrons* imported from England and sent out with balls of peat will not grow even in our Long Island soil until they have had time to send out roots into the good garden soil around them. The sum of the whole matter is that for a stiff clay soil any lightening material is good, but for a light, friable soil any lightening material is injurious. The sun will pierce and burn it, and will leave the plant to the rigours of a cold winter in a half-sick state, in which it may either languish or die. If, misled by the experience of cultivators in the cool, moist climate of England, any have been induced to make a peat-bed in a light, friable soil, their only remedy is mulching. Nothing else will save them from the inevitable result of their error. Our opinions are based upon an experience of thirty years, during which we have grown many acres of *Rhododendrons* without a particle of peat and in open sunshine. We have always considered the peat and shade fallacies a great bar to successful *Rhododendron* culture.—S. B. PARSONS, *Flushing*, in "Gardeners' Monthly."

Lilium Szovitzianum.—Five years ago I purchased a bulb of this noble Lily carefully taken up with its roots. The first year it had three blooms; the second, five; the third, eight; the fourth, fifteen; and this year it has fifteen again, all on one stem, as it has never sent up a second one, a peculiarity said to belong to it. It will be interesting to learn from any of your readers what is the greatest number of blooms this Lily has yet produced.—G. F., *Heckam*.

Flowering Echeverias.—Although when used for bedding purposes these are undesirable, yet some of the varieties of *E. secunda*, when in full bloom, are exceedingly ornamental, and the flowers are singularly graceful. The stout, hard-wooded character of the stems, and the firm substance of the flowers render them specially permanent when cut, whilst their drooping form places them in the front rank as regards material for table decoration. The variety most commonly grown is *E. secunda glauca*, but the best-flowering kind is *E. secunda major*, a variety which invariably produces from two to three racemes of flowers on each stalk, and thus gives as a rule double the quantity of bloom produced by any other sort.—A.

NOTES OF THE WEEK.

FREESIA LEICHTLINI.—This beautiful bulbous plant, from the Cape of Good Hope, is now flowering freely in Mr. Ware's nursery, Tottenham. Its habit resembles that of a dwarf-growing *Ixia*, and the flowers are produced freely in trusses on slender, branching, wiry stalks, from 12 in. to 18 in. in length. It is at present in pots, but when it becomes more plentiful it will be tried in the open ground, where, if planted in a warm, sandy, well-drained soil, and slightly protected during severe weather, it will doubtless succeed perfectly. It is, however, valuable as a pot plant for conservatory or room decoration; for, when laden with its white, waxy *Gloxinia*-like flowers, which have a slightly spotted yellow throat, and which are deliciously fragrant, few bulbous plants are more beautiful or deserve more attention.—C. W. S.

ORNITHOGALUM ARABICUM.—We have received from the New Plant and Bulb Company, Colchester, cut specimens of this beautiful *Ornithogalum*, a plant which has always been considered difficult to flower; the specimens before us, however, prove the contrary to be the case, at least, at Colchester. The flower-stalks sent, which are about 2 ft. in length, are each surmounted by a fine cluster of pure white-petalled blossoms, set off by a black, glossy, head-like centre, and golden-tipped anthers. On account of its very attractive character when in bloom, as well as the usefulness of its sweet-scented flowers in a cut state, it would be interesting as well as profitable to learn by what method of culture this *Ornithogalum* succeeds so well at Colchester.

CHERRIES AND PLUMS IN COVENT GARDEN.—Cherries are now arriving in enormous quantities from the south of France; some are packed in round half-bushel baskets, others in square ones made of white Willow. They look ripe and good, but they are inferior in flavour to English Cherries; they are sold by auction in lots consisting of three baskets, and fetch from 7s. to 8s. 6d. per lot. Plums, resembling in appearance Greengages, but larger and very inferior in quality to that kind, arrive in small wooden boxes, each of which contains about four dozen fruits. Though not uninviting in appearance, being covered with a rich white bloom, they are not good as yet; but in a few weeks we may expect their quality to be much improved.—S. C.

IXIAS AT TOTTENHAM.—These handsome plants are rarely grown in large quantities, owing to their supposed inability to withstand our English winters. It is not, however, severe frosts that affect them so much as cold, cutting, easterly winds in spring, when the plants have commenced to make young leaves and bloom-buds. In the Tottenham Nursery several long ranges of frames, from which the sashes have been long removed, are now full of *Ixias*, the flower-spikes of which may be counted by thousands, and all are thickly beset with brilliant blossoms of all shades of colour, from pale green to the deepest magenta and crimson, collectively forming one of the most gorgeous floral displays imaginable. If mixed varieties of these were planted in clumps by the sides of shrubbery or *Rhododendron* borders in warm, sunny positions, where a hand-light or some such protection could be given them, there is no reason why *Ixias* should not form one of the principal attractions in our gardens in June.—S.

WALL SHRUBS AT KEW.—No matter at what season of the year one visits Kew, there is always something interesting on the walls. On those surrounding the herbariums department may now be seen *Habrothamnus corymbosus*, laden with clusters of reddish-coloured blossoms; *Convolvulus Cneorum*, thickly studded with white and rosy flowers; and the beautiful though well-known *Ecremocarpus scaber*, finely in bloom. Associated with these are also *Berberis cristata*, well furnished with light pendent clusters of blossoms. The Tree Medick (*Medicago arborea*) is likewise very attractive, being covered with bright yellow, *Coronilla*-like flowers; the yellow blossoms of *Fremontia californica* are also very showy, as are likewise the flowers of *Cytisus ramentaceus*, and the well-known *Cytisus* of our greenhouses (*C. racemosus*). *Rosa sericea* is also laden with white flowers, having pale-coloured stamens and light brown anthers.—S.

GUARDING AGAINST THE PHYLLOXERA.—The vast importance to France of every thing connected with the ravages of the *Phylloxera* (or Grape Vine Louse) is attested by the fact that a large proportion of all the communications made to the Academy of Sciences in Paris are on that subject. A permanent Commission has been established by the Academy, to which all matters relating to the *Phylloxera* are referred. With regard to the protection of the non-infected region against invasion, this Committee has recently recommended the following propositions:—first, the prohibition of the transmission of Vine cuttings from any infested district; second, the prohibition of the introduction and planting of cuttings of infested Vines in an

uninfected region; third, when an uninfected region is found to be attacked, to dig up all the plants completely, and burn every portion of them, and then to thoroughly disinfect the ground; fourth, to extend this disinfection of the ground to all the cuttings to some distance outside of the suspected spot.

A DISTINCT CLEMATIS.—There is now in bloom in the Paris Garden of Plants a *Clematis* with bright orange-red flowers; these are small and close, reminding one at first of a *Cuphea*, but the habit is of course graceful and the colour bright.

HALIMODENDRON ARGENTEUM.—This is a most beautiful bush, now bearing numerous and delicate rose-lilac blossoms, the habit being open and light. It is one of the greatest favourites in my bank of choice shrubs, and it deserves to be widely known.—R.

THE CUT-LEAVED WALNUT.—M. Carrière informs us that he raises this form, figured in *THE GARDEN* of last week, from seed of the variety *heterophylla*. From this tree 60 per cent. of the seedlings belong to the cut-leaved Walnut.

MECONOPSIS ACULEATA.—This grand addition to Poppyworts is now in flower in the York nurseries. It has stems loaded from top to bottom with glorious deep blue blossoms shaded with violet, and a centre of rich yellow anthers.—R. P.

A NEW GYPSOPHILA.—Dr. Moore sends us from the Botanic Gardens, Glasnevin, a very distinct dwarf species of *Gypsophila*—*G. cerastioides*. It is from northern India, and was raised from seed sent last year to Glasnevin; it is quite unlike any of the same genus now in our gardens, dwarfier, and with larger flowers.

CHAMEROPS EXCELSA IN CORNWALL.—Our specimen of this hardy Palm (which has been planted about twenty years) is now in full bloom; it bears seven large trusses of a most beautiful golden colour. I should like to know if there be any better specimen of this Palm in the open air in this country. Ours has a stem 8 ft. in height, and the extreme height of the plant is 12 ft.—WILLIAM HOVELL, *Heliyan*.

NEW HELIOTROPE.—A finely-grown plant of a mauve-coloured *Heliotrope* has been sent to us by Messrs. Beckwith & Sons, of Tottenham, raised from seeds of the well-known *H. Florence* *Nightingale*. It has a dwarf and compact habit, and the flowers, which are produced in great profusion in large trusses, are agreeably scented. It will no doubt become a good market plant.

BORONIA ELATIOR.—This graceful, free-flowering, new *Boronia*, of which a coloured representation was given in *THE GARDEN* for September 23, 1876, is now finely in flower in Messrs. Veitch's nursery at Chelsea, where plants of it may be seen growing in 6-in. pots in the form of dwarf standards; their gracefully-drooping branches are thickly laden with bright rosy, bell-shaped blossoms, which have a charming effect.—S.

HARVEST AND SPRING.—The Grass Valley (Californian) "Union" gives an account of an Apple tree growing in the orchard of Dr. Harris there, as follows:—"A large Apple tree, standing near his dwelling, was left last autumn with the fruit ungathered—for the birds, the Doctor said. As we write, a large number of golden Apples adorn the tree, while the fragrant pink and white blossoms seem begging for room to start a new crop. The green foliage, now well advanced, crowns the whole—altogether a spectacle rarely seen elsewhere."

ADIANTUM LUNULATUM.—This very distinct and handsome East Indian stove Fern has a slender, pendulous habit of growth, and is peculiarly adapted for growing in baskets or on blocks. Its fronds, which are pinnate, have the pinnae alternate and lunulate; they are bright green in colour, and about 1 ft. in length; stipe and rachis black, changing towards the apex. This being a deciduous species, care must be taken that it does not get too dry during winter. It may now be seen in beautiful condition at Mr. B. S. Williams', Holloway.—S. B.

FRUIT PROSPECTS IN MASSACHUSETTS.—The temperature here is increasing—88° in the shade; still, on account of the ground being well soaked by the late rains, vegetation is making great progress, and owing to the very dry and ripening season of last year the bloom on trees and shrubs has been extraordinary. Of Apples we have no crop, but Pears, Quinces, Cherries, and berries of all kinds are very promising. Potato bugs are committing great destruction.—WM. FALCONER, *Botanic Gardens, Cambridge, Mass.*

FRUIT SHOW AT ALEXANDRA PARK.—An international fruit show is to be held here on September 13, 14, and 15, when prizes amounting to upwards of £350 will be offered for all kinds of fruits, vegetables, table decorations, and a few cut flowers. The schedule is now in course of preparation, and will shortly be ready, when it may be obtained on application to John A. M'Kenzie, 1 and 2, Great Winchester Street Buildings, London.

THE FRUIT GARDEN.

PROTECTING FRUIT TREE BLOSSOMS.

Many say "Of what use is protection if when the pinch comes we lose our fruit?" I must admit that in bleak, exposed districts nothing but a glass structure—the larger the better—will, in all seasons, secure a crop of the choicer kinds of fruits, such as are commonly grown on walls. In all places, therefore, where the cost can be borne, it is better to adopt this plan at first than spend money on partial or temporary expedients that are not trustworthy; half-measures are seldom or never satisfactory. It is well also to put in a row of hot-water pipes, especially in narrow houses. In good-sized, roomy structures it would seldom be necessary to use artificial heat, but its presence even there gives such a sense of security that it is always money well spent to have it at hand in case of necessity. At all times it should, however, be used with caution, and never resorted to unless it is necessary to keep the temperature from falling more than a degree or two below the freezing point. During our occasional damp, sunless autumns the wood often lacks the necessary maturation for the development of strong and perfect blossoms, and there is in consequence a scarcity of fruit the following season even if spring frosts do not prevail to an injurious extent, but a glass roof would obviate all this; in fact, I am not sure if in the case of some stone fruits the perfect ripening of the wood is not of more importance even than protection in spring, for without well-ripened wood the flowers will be imperfect, and fail to set, even if the spring be favourable; and if it be unfavourable, protection scarcely ever secures a good crop. No doubt early disbudding, and timely and persistent attention to the destruction of insects have an important bearing upon the early and healthy development of the young wood; but even where all necessary attention is given in a difficult autumn for wood ripening, only those trees in the best and warmest aspects can be said to have a fair chance of securing the requisite amount of vigour in the embryo buds to make sure of a good set of fruit.

In many old-fashioned gardens the Peach walls are heated by means of flues, which are often of great use in ripening the wood in autumn, as well as in warding off sharp frosts in spring; but they require to be in careful hands, and the merest rubbish only burnt, or the walls near the fireplaces would be too hot. In my young days I had the management of the fires on a long stretch of flued Peach wall, and the fuel was nothing but the cinders from the other fires mixed with rubbish. The cost was a mere trifle, and the extra expense in constructing the flues (if any was incurred) would be counterbalanced in the saving of bricks, an item of considerable importance now that building materials have advanced so much in price. Good, however, as these may be, I should, as I have already stated, prefer good, roomy, substantial houses for fruit-growing, and believe that where a certain regular supply is required, this system will in the long run be found the best and cheapest; but the number of places where glass structures can be devoted extensively to fruit-growing will, I fear, always be limited. Many owners of property will doubtless continue to surround their kitchen and fruit gardens with walls; it is an old custom, and gives a sense of security and dignity to a place; if, however, they must have walls, in all new places, one or more of them should be traversed by flues for the choicest kinds of fruit; and if during a cold, wet autumn a very little artificial heat could be circulated through the interior of the wall, and radiated from its surface, there would be a greater chance of the wood ripening than would otherwise be the case. Last season was a difficult one for wood ripening, and many of the blossoms were on bad aspects weak and imperfect, a circumstance which has contributed in no small degree to failure this year. In confirmation of this I may say that our strong, healthy Peach trees on south walls—where the wood was made early and had a chance of ripening—were carrying a fair crop; in fact, in some instances I have had to thin, and there are still more to take off. Apricots have not fared so well, but even with those trees on a south wall that had the best chance of ripening their wood are furnished with a few fruit, whilst on an east wall, where the covering was thicker, the failure is nearly complete.

In the course of the last twenty-five years I have tried several kinds of covering in different counties, and under different conditions, and I have always found that trees somewhat thinly covered with feathery sprays of Yew with one, or in bleak situations, two thicknesses of fishing-net over them compared favourably with those protected by any other coverings short of a glass roof. In exposed situations there is always a difficulty in the case of frigi domo, or any other thick woven covering in securing them against wind, and as soon as they get a little the worse for wear, if a stormy day or night comes, they tear the nets into shreds and half ruin the trees. Trees under Yew branches and fishing-nets, on the contrary, are always

snug; and as the days lengthen, and they require more air and less protection, the leaves on the Yew branches gradually wither and fall; and if they do not fall fast enough, it is an easy matter to remove the nets and thin out the branches, operations which give an opportunity for looking out for insects at the same time, and dusting a little Tobacco-powder amongst them if any be visible. A flued wall carefully managed, with a thin covering of Yew branches and fishing-nets would be, I think, practically safe in most districts; but after all we must look more to well-ripened wood in autumn for a crop, without neglecting spring protection, but of the two I take the former to be the most important.

E. HOBDAY.

COVERING EARLY VINE BORDERS.

Discussions upon the different methods employed in the cultivation of particular plants, whether grown for their fruit or as decorative subjects, are no doubt calculated to benefit horticulture by elucidating the best and most suitable treatment necessary to meet the requirements of the plant or plants under consideration; but to effect this, it is essential that both parties engaged in the discussion be actuated by a sincere desire to establish and make clear the soundest practice, and not influenced by a disposition to carry their arguments right or wrong. Unfortunately the latter too often appears to be the governing motive, and the present discussion between Mr. Simpson and myself is not an exception. The real question in the first instance, as I have before stated, was a very simple one—the necessity or otherwise of using fermenting material on early Vine borders. I have brought forward sufficient evidence to satisfy any unprejudiced person that as good early Grapes are grown without, as with the use of, fermenting materials; Mr. Simpson has not brought forward a particle of evidence to controvert what I have advanced, or to substantiate his own views. Instead of arguing the case on its own merits, he has from the first tried to rest the issue upon the worn-out, exploded theory, that because bottom-heat is requisite for some plants, it is necessary for all that need considerable artificial warmth in which to grow. Mr. Simpson has, without cause, charged me with a disposition to evade the real question; your readers, I think, will have little difficulty in seeing who has evaded it. At p. 474, Mr. Simpson still adheres to his tactics in referring to the cultivation of plants that are as different from the Vine in their nature and requirements as they can well be; and he unfairly represents (see p. 471) what I had written upon growing Cucumbers in frames on ordinary beds of fermenting material. He says that "I tacitly recommend a bottom-heat for Cucumbers of 85° or 90°," and tells us that this is much higher than is necessary or desirable for them, which every one who knows anything about Cucumber growing is aware of, if kept up for a continuance. Mr. Simpson does me the injustice of not adding that I merely stated that Cucumber plants would bear turning out in the beds when the heat had subsided to this temperature; as in a bed of fermenting material the temperature would quickly fall much lower, as Mr. Simpson doubtless must know. But what, may I ask, has this to do with the question under consideration? If Mr. Simpson would confine himself to the simple question involved, and give us some practical proof that would bear out his views, we might arrive at something definite. I may remind him that mere assertion, having nothing more solid to rest upon than analogy and threadbare theories, is valueless.

T. BAINES.

New Early Peaches.—Mr. C. Downing says, in the "Gardeners' Monthly," that he worked the Alexander, Honeywell, and Amstden's June Peaches on the same tree, and they all ripened together. The leaves were different, but the fruit looked alike, and could not be distinguished when placed together.

Cox's Orange Pippin.—The merits of this Apple are well known, and indeed they are so conspicuous that in common with other good fruits it is always speaking for itself, and hence it is everywhere largely propagated and extensively planted, and is on the way to take the lead in the Apple garden, and prove to all that our declaration in its favour is warranted by the facts. It is one of the best paying Apples in Kent, and it is one of the few that may be trusted for a crop in those damp alluvial valleys or "bottoms" where spring frosts make the most havoc, and fruit-growing is a precarious business. Our observations of this variety, under many different circumstances, have been enlarged in a striking manner within the past few weeks. In our fruitful land in the valley of the Lea, the Hawthornden is a prodigious cropper, and about twenty better varieties compete with it for popularity, not the least important amongst them being Shepherd's Fame, Lemon Pippin, Ecklinville, Cellini, Old Nonpareil, Keswick Codlin, and Blenheim Orange. This year Cox's Orange beats them all, for the trees are smothered with fruit; while on all other sorts the crops are comparatively thin, more or less. It was precisely the same in the compartment occupied with Apple stocks in the Royal Horticultural Society's Chiswick garden, last year. The little trial trees of Cox's Orange were then well covered with fruit, while other varieties were barren or nearly so. The uninitiated reader may be disposed to ask what is the quality of the fruit we laud in this way? Well, the question is pertinent. The answer may be summed up in a few words. Cox's Orange is a better Apple than the Ribston Pippin, being as handsome, as well flavoured, and with more tender flesh.—"Gardeners' Magazine."

THE PALMS AND THEIR USES—THE WINE PALM.

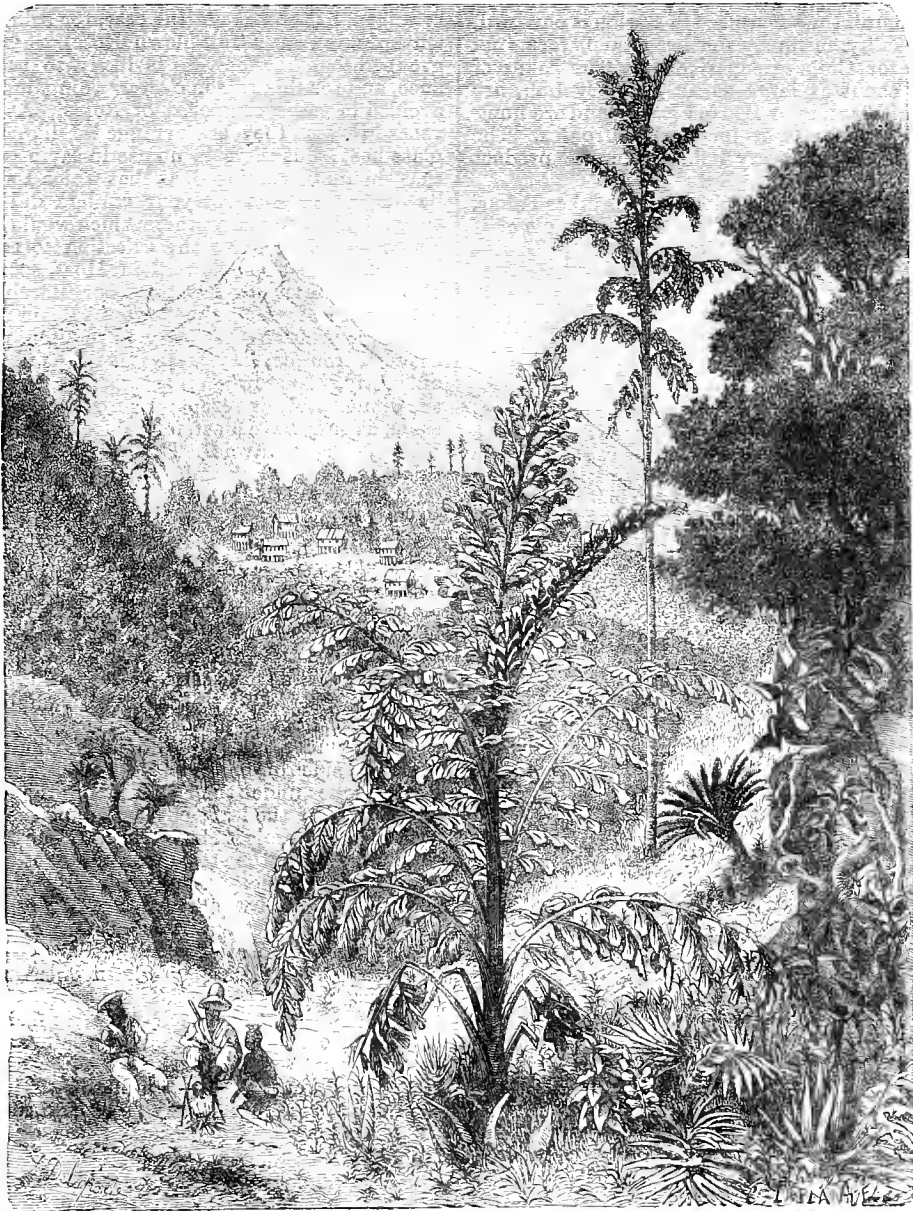
With the exception of the Grasses, among which the various cereal plants find their places, there is probably no Order of plants more important than that of the Palms. For the most part natives of tropical countries, where they form the most striking feature of vegetation, their importance is hardly realized among us; yet a very little reflection will convince us that to those whose lot is cast in these regions, the Palms are of pre-eminent and almost infinite value. Of the Cocoa-nut

Palm, for example, it has been said that it contains in itself everything necessary to human existence: food, drink, furniture, clothing, oil, medicine—all these are furnished to the Cingalese by this beneficent tree. "The princes of the vegetable world," as Linnaeus called them, "the loftiest and stateliest of vegetable forms," to use the words of Humboldt:—whether we consider Palms from an æsthetic or a utilitarian point of view, we cannot fail to be struck with their varied forms and properties; and they are familiar to us from our earliest youth, being mentioned in the sacred writings from the encamping of the Israelites under the Palm trees of Elin down to the time when they were strewn in the triumphal path of the Founder of the New Dispensation; and yet again in the Apocalyptic Vision. Palm oil, Betel, Sago, sugar, wax, Dates, ropes, brushes, and very many more equally useful

articles are furnished us by members of the Palm family, showing that the 600 or 700 species which it contains are not dependent upon their beauty for their claims to our notice; while in its fermented form of arrack, the juice of various Palms is probably more widely used than either the wine or brandy which is produced from the Vine, or the whiskey or beer which is derived from Barley. The three rooms in the Kew Museum which are devoted to the economic products of the Palm tribe, are sufficient evidence of their variety and importance.

The species represented in our figure is *Caryota urens*, popularly known as the Wine Palm, which name, however, is also given to *Cocos butyracea*. The genus of which it is a member is a small one, containing only nine species—which number might probably be yet further reduced—all of them natives of India and the adjacent islands. They are lofty trees, having bipinnate leaves, which are easily recognised by the shape of the leaflets; these, instead of being long, narrow, and tapering, as in most Palms, are wedge-shaped, tapering to

the base, and broad at the upper extremity, where they are curiously and irregularly toothed or jagged. The male and female flowers are borne either upon one spike or occasionally upon separate ones, and the roundish, fleshy fruits are of a purplish hue, each containing one or two seeds. The fruits of *C. urens* are very sharp and acid; so much so, indeed, that it is stated they will produce a strong burning sensation if applied to the skin, and from this property the species has acquired its specific name. Although certainly of less economic importance than the Cocoa-nut and some other Palms, this *Caryota* is a very useful tree. Beginning with the trunk, a small quantity of very hard wood is yielded by its outer portion, of which the Cingalese make pestles for beating their Rice. The inner portion or pith of the trunk is much more important; it is made by the natives into bread, or boiled by them



The Wine Palm (*Caryota urens*).

into thick gruel, in either of which conditions it is highly nutritious; it has the same properties as Sago, of which it may be considered a kind. From the leaf-stalks a very strong, tough fibre is obtained, called Kittul or Kettule fibre; from this many articles are made, such as ropes, brooms, and baskets; while a woolly material, which is scraped off the base of these stalks, is sometimes used for caulking boats; the leaf-stalks themselves are employed as fishing-rods, for which they are very suitable, being light, tapering, and elastic.

The most important part of the tree, however, is the spike

of flowers, from which a large quantity of the juice is obtained; this juice is known as toddy, or Palm wine, and it is stated that as much as 100 pints will be yielded by a good tree in the course of twenty-four hours. When boiled, this juice yields very good Palm sugar, or jaggery, as it is called: about 8 gallons of the juice, boiled over a slow fire will yield 4 gallons of thick syrup. To this syrup small pieces of the bark of *Shorea robusta* (the Saul Tree) are added, and when boiled again the jaggery is produced. The manufacture of this sugar is undertaken by a particular caste of natives, and from this Caryota and two other Palms (*Cocos nucifera* and *Borassus flabelliformis*) all the sugar used in Ceylon is obtained. Some of the finest quality, made by the head men, forms an excellent substitute for Chinese sugar-candy. The cakes of jaggery, which are about as large as an ordinary bun, are wrapped separately in Plantain or Banana leaves, and are hung up until required for the market or for other purposes. The tree is sometimes called the Jaggery Palm, from the product which it yields.

Although not so common in cultivation as some other Palms, the Caryota is sometimes met with; there is an example of it under the dome of the Palm stove at Kew. B. J.

A Primrose Field.—Is it possible to write or say anything new regarding the pale Primrose? We are all familiar enough with it in the woods and on the hedge banks, but few, I question, have seen it in such grand display as it is to be found in a locality on the banks of the North Tyne, near the little village of Charlton. A long narrow field—about three acres, bordered on the river side with Hockberry trees and on the opposite side with a very tall hedge—is covered with immense patches of this Primrose, the whole making a gorgeous and a joyous sight, many of the individual plants being of great size. The field is so overrun by rabbits that no stock of any kind are ever put into it, and as the rabbits do not meddle with the Primroses, they flourish and spread at their own sweet will. Two plants bear very double flowers, and two single white specimens have been found amongst them this spring. The season being late here, the grand display is only just now going off, and those who have seen this Primrose field will not soon forget the sight.—G. F., *Bellingham*.

Spring Bedding Plants.—Owing to the lateness of the season these are late in blooming this year, and where spring gardening is carried out summer bedding must be proportionately late. Spring-blooming plants have much to recommend them—their hues are, for the most part, soft and chaste; their whites are pure, their blues pleasing, and their reds soft and subdued; they possess no fiery colours nor strong contrasts; and they flower at a time when there is no scorching sun which renders masses of colour in summer so intense as to make them painful to the vision. Even a bed of Tulips seen in full bloom in April is not offensive, inasmuch as the light is not yet too glaring and the surroundings are fresh and green. Hardiness, too, is a great recommendation to spring flowers. Violas and Pansies, Primroses and Polyanthus, Arabis and Alyssums, Anbrietias, Forget-me-Nots, Silences, Daisies, Wallflowers, Stocks, and many others, all hardy, make up a list that will satisfy the most exacting for variety in material and colour. The beds should be filled in November in whatever way may best suit the taste of the operator, and then there will be an abundance of floral beauty from early in March to the end of May; the filling up for the summer will be done early in June with well-prepared plants, and the beds are thus in use and in beauty almost all the year round.—A. D.

Plants Sleeping.—Several members of the Parisian Biological Society have recently been engaged in a series of experiments which seem to prove that everything endowed with life, whether animal, plant, or ferment, is susceptible of being brought under the influence of anaesthetics—in other words, may be sent to sleep. It has been proved that the influence of anaesthetics extends to all the animal tissues, and last of all to the central nervous system. Hence, it was argued, plants having tissues must be also subject to the influence of ether, &c. Experiments have proved this to be the case. Germination is arrested by anaesthetics. The Watercress, for example, germinates within thirty hours. Ether arrests germination in this plant, but does not destroy that faculty. It merely sends the plant to sleep, for germination recommences as soon as the use of ether is suspended. This capability of being sent to sleep is not confined to plants—it extends to ferments. Thus the ferment of beer, when submitted for twenty-four hours to the influence of ether, becomes perfectly dormant, but recovers activity as soon as anaesthetic action is suspended.

THE GARDEN IN THE HOUSE.

FLORAL DECORATIONS.

ROSES.

VERY effective table decorations can be formed by arrangements composed of Rose blooms only, with the addition of Ferns and Grasses in the way of foliage. Roses are always obtainable during the summer months, as all gardens, however small, are certain to contain a few Rose trees. Looking at a Rose bloom one would suppose it to be a flower very easily arranged, but this is not the case, for being of a large size (I am speaking of a full-blown Rose) when many blooms are grouped together the vase is likely to have a heavy appearance, and for this reason overcrowding must of all things be avoided in vases composed of Roses. As to the stands and vases in which they are arranged I like those made of clear glass best; but there is no use in saying one of this form or that should be employed, as that which I might describe might be one which some of your readers did not possess, though they might have many others which would be quite as effective. I shall therefore leave the selection to their own good taste. Some arrange their flowers in Moss, some in wet sand, and others in water for flat tazzas or March vases. I like sand better than Moss, as the flowers remain more upright and in whatever position they may have been placed, but for glass baskets, troughs, &c., water is best, as if seen the sand looks unsightly. Narrow glass troughs are very fashionable now on the dinner table as receptacles for flowers; but I do not admire them, as they have a set, formal look about them, a thing which I always try to avoid. Those who do not agree with me on this point, and who admire these troughs, will find small Rose buds better for their decoration than more expanded blooms—those, for instance, of the Moss or old Cabbage varieties. For placing in specimen glasses I like a single, half-expanded flower associated with its own foliage, as when this has been done, the leaves can be twisted and placed wherever required as easily as one would an artificial spray. The manner in which a Rose leaf is wired is as follows:—If you look at the back of a leaf it represents a stem with a few leaflets on each side, and one at the end or top; down the centre of each of these leaflets is a thick rib with slighter ones branching from it. Take a piece of thin wire, press it through the top leaf under one of the slight ribs, bring it up on the opposite side of the rib, as if you were sewing, and pass your stitches under the ribs, keeping the long stitches on the wrong side of the leaf; cut the top of the wire off, so as not to allow it to project above the leaf, and twist the other part round and down the stem, but care must be taken to avoid the wire being visible. As mounting in the above way takes some little time, I would advise only those about to be placed in specimen glasses to be done in that way. To arrange Roses in a March or three-tier stand, the largest or full-blown should be in the lower tazza, half-blown ones in the next, and only buds, &c., on the top tazza or trumpet. In placing the blooms they should just touch each other; in fact, their foliage, &c., should just cover the sand or whatever else they may be arranged in. Field Grasses look very well interspersed among Roses and Ferns. In arranging a stand of Roses of more than one tier, their colours should be shaded off as well as their sizes graduated. For a small-sized dinner-table decoration suited for everyday use, a vase in the centre and four specimen glasses grouped round it will be found very pretty and not too heavy for a small table. Should this, however, not be deemed large enough, a few glass baskets filled with Roses might be added—say four—in addition to the specimen glasses.

ANNIE HASSARD.

Woodwardia radicans cristata.—This is an interesting variety of the *W. radicans*, and makes, when grown in a basket, a graceful object; the fronds, which are drooping, average from 18 in. to 21 in. long, each pinna being crested; at the apex of the frond there is generally a tassel, often attaining large dimensions. This will be found useful both as a decorative and exhibition plant; and it will thrive either in the conservatory or temperate house.

Poisonous Anthurium Seeds.—The poisoning of rats with the seed of *Anthurium Scherzerianum* is reported by Mr. T. M. Shuttleworth, of Preston, in the "Journal of Horticulture." It appears that some newly-gathered seed was placed in one of Mr. Shuttleworth's Orchid-houses to dry, and a portion eaten by the rats. Its poisonous properties were made evident by the discovery of six dead rats near to it.

TRAPS FOR NOXIOUS ANIMALS.

A good many years ago (some ten or twelve) the Society for the Prevention of Cruelty to Animals held a show or prize competition in the gardens of the Royal Horticultural Society, at South Kensington, of all the different kinds of traps that were in use for trapping, taking or killing noxious animals, the aim of the Society being of course to distinguish and reward those that occasioned least suffering to the animals taken. If the animals had had a voice in the matter they would no doubt have said that the Society for Prevention of Cruelty would have kept more within its *role* had they refrained from encouraging traps at all; they were not consulted, however, and the show duly took place. No doubt its results, that is, the names of the manufacturers and the traps that gained

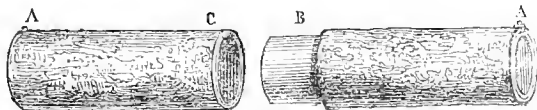


Fig. 1.

the prizes were duly chronicled in the journals of the day, but we remember regretting that there was no general account nor figures of the different kinds of traps exhibited, which would have been not only a very useful record of what was available for the purpose, but also a very interesting display of human ingenuity turned in rather an unusual direction. It would also now have helped to show whether we have made any progress in the improvement of this class of articles dur-

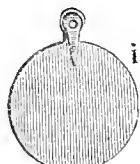


Fig. 2.

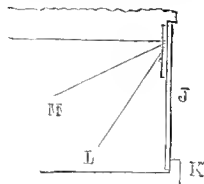


Fig. 3.

ing late years — a point on which we feel considerable doubt, for we observe that whenever we have occasion to buy anything of that kind, the merchant rather dwells upon its being an excellent old-fashioned trap that has never been surpassed than on something with the fresher charm of novelty. We wish the Society for Prevention of Cruelty would hold another show for traps, which might be better utilized. In the meantime we shall notice one or two kinds which we have lately

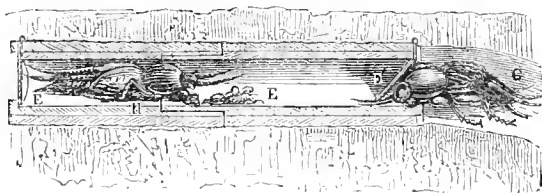


Fig. 4.

seen exhibited or noticed in France, and as coming most home to the horticulturist, we shall begin with one or two contrivances for catching insects. The first is for catching the Mole-Cricket, an insect which, although very destructive to some plants in some parts of France, is not sufficiently numerous here to require much trapping.

The *Courtilière* or Mole-Cricket (fig. 4) is an orthopteron insect of large size, like the cricket and grasshopper. Its hind thighs are swollen for jumping, but the animal is heavy and makes somersaults, falls, and tumbles rather than leaps, and, indeed, does not often use this method of progression. It is of a dark rust colour, and has its anterior feet widened into delving shovels like the hands of the mole, to which its manner of digging and slightly raising the soil above its runs has much resemblance. In order to catch these animals, pieces of wood are taken in which holes $1\frac{1}{2}$ in. in diameter are

turned lengthways (A A, fig. 1), and pening in the middle (C B). Two ends (A A) are therefore open, but a little round of thin sheet iron (fig. 2) is suspended at each from above and opening inwards (L M, fig. 3). A part of the slightly raised passage hollowed by the animal under the earth is then uncovered, and the piece of wood is placed lengthways in such a way that its hole coincides well with that of the passage; all is then covered with earth. During the night, the Mole-Cricket, in visiting its passages, meets the little trap-door which makes a slight obstacle to it (fig. 4). It pushes against it, lifts it, and passes; the trap-door falls, and it is taken! Another arrives by the same road, or by the opposite extremity; it enters and meets the first; then, in this little dark and narrow space, a blind duel takes place; the conqueror devours the conquered. A third bandit arrives in his turn, who, fresh and active, immediately engages in battle with the conqueror, who is weakened and perhaps wounded in the preceding combat, and gives no quarter. In this way several Mole-Crickets are destroyed in the same night in the same trap, but never more than one whole one and the remains of some others are found within it. Such habits would hardly indicate that the Mole-Crickets are eaters of roots; and on the strength of them some hold that they are carnivorous, and that if they cut the roots, it is in order to catch the worm or the insect which attacks them. This is a very interesting point in the natural history of the animal—but it has not so much practical importance as might at first sight be imagined. If the bulbs of the *Gladiolus* for instance be destroyed by the Mole-Cricket, it is no consolation to the cultivator to be told that the insect that did the damage is a friend and to be cherished. But the evidence is too strong against them to allow us to doubt that, whether they be carnivorous or not, they are certainly vegetable feeders.

It is said that with thirty traps, which only cost a trifle (for any one may make them for himself), and with a little patience and skill, the most numerous colony of Mole-Crickets may be wholly destroyed in a few weeks. A. M.

A Plague of Cockchafers.—Many of the Departments in the north of France are, according to the "Globe," suffering from a plague of cockchafers, and the destruction made by them is becoming very serious. These visitations are of almost periodical recurrence, once in three years being generally the time when they make their appearance in overwhelming numbers, and the country people have at last adopted the expression of *l'année des hannetons* for the year in which they are expected. The destruction of small birds by the French sportsmen is asserted to be the cause of this scourge, which has reached alarming proportions. For the last few weeks during the evening the noise of the flight of these insects from tree to tree has been most extraordinary, the sound being like that of the whirl of machinery, and the leafless appearance of the trees shows the extent of their depredations. Commencing on the topmost branches they strip off every particle of verdure, gradually descending, until in many instances they leave the trees as bare as in midwinter. In some of the rural districts a few years back large sums of money were spent by the authorities in trying to get rid of these pests. In one small village in Normandy, called Varangeville, no less than £20 was paid for their destruction. The country people found the offer of one halfpenny a gallon a sufficient inducement to go out and collect them, which was effected by spreading sheets under the trees and then shaking them, when the cockchafers fell in thousands, were collected in baskets and carried to the Mairie, where, after they had been measured, they were buried in pits filled with quicklime. Some idea of the enormous quantity of the insects may be conceived when a reward of £20, the utmost the authorities were disposed to offer, was gained by the destruction of no less than 10,000 gallons of cockchafers. The mischief does not end with the results of their appearance in the winged form, but the grubs of the insect are equally destructive, and many a crop is seriously injured in the intermediate years of their appearance in such vast numbers. Of late the rooks and crows have received protection from the Government, and the result has in a measure been beneficial, but to all appearance it will take a long time before the pest is cured, and the small birds once more obtain the mastery. No greater proof than this instance in France could be afforded of the wisdom of the law to protect small birds, especially in the breeding season, as this scourge in France may ere long, if not checked, rival in extent that of the famous Colorado beetle.

THE INDOOR GARDEN.

EVILS OF EXCESSIVE PROPAGATION.

THE demand for unlimited numbers of soft-wooded plants for flower garden decoration has not only almost driven out of cultivation many of our old garden favourites, but indirectly it has used up or exhausted many of those that were but a few years ago the chief ornaments of our geometrical gardens. Verbenas and Calceolarias especially have suffered greatly by the excessive strain which has been put on the powers of reproduction, for being of a half-hardy character, the forcing process, to which they have been subjected year after year, to induce soft, succulent growth fit for the propagating pit, has eventually deprived them of their stamina or constitution, and, as a natural consequence, diseases of various kinds have made their appearance, all of which may be classed under the general term of premature decay. On the other hand, seedlings of these plants grown under exactly similar conditions flourish with surprising luxuriance, a circumstance which shows the evil cannot be attributed to soil or climate. There cannot be a doubt that many choice new plants are seriously affected by over-propagation before they reach the hands of the public; for, in getting up a stock of any new plant for which there is a great demand, the stock plants are forced to the utmost limits in order to produce cuttings, and not only new plants, but old ones, for which the demand is great, are propagated until the weight is diminished to so great an extent as to allow one of the peculiar features of modern gardening to be carried out, viz., the transmission of plants by post. The surprising part of the matter is that cultivated plants can endure such treatment; for I question if even our commonest weeds, however tenacious of life, would do so if subjected to a high temperature and every shoot cut off as fast as it made a pair of leaves. Any plant that flourishes in a temperate climate must, sooner or later, suffer from the enervating effects of a moist and warm temperature. It would be a gain to horticulture generally if we could be induced to recognize the truth of the statement, "Thus far shalt thou go and no farther"—for, by attaching an exaggerated importance to unseasonable productions, much valuable time and skill are wasted. It is no unusual thing to hear of people really fond of gardens being deterred from owning and cultivating one by exaggerated notions regarding the expense attending it; but if really useful and necessary subjects were cultivated first, and only spare time and money devoted to curiosities, we should seldom or never hear a complaint as to a garden being an unprofitable investment.

J. GROOM.

Heathum.

THE POINSETTIA AND ITS CULTURE.

THOUGH this plant has been in the country for forty years or more, it is still a comparatively rare thing to see it well flowered, if that term can be applied to a plant in which the flowers themselves are insignificant, its beauty consisting in the brightly-coloured floral leaves which, under good culture, crown the shoots. It is an easily-grown subject, and I do not know any winter-flowering stove plant that I could better recommend to large and small growers alike who possess a stove, or even an intermediate-house. The speediest way of propagating all the varieties of the Poinsettia is by cuttings made of the young shoots. It is not desirable to have the plants too tall, and consequently cuttings should not be put in before June, from which date successional batches may be struck every three or four weeks till October. This will ensure a stock of plants suitable for decorative purposes, of heights from 3 ft. to 6 in., and all will continue to flower from November till April or later. It has been stated that the Poinsettia cannot be had in flower so late as May; but I can state that at the beginning of that month this season I had numbers of plants of it in flower, though past their best, and even on the first of June bracts quite fresh and well-coloured were still hanging to the plants here and there, and in some instances the young growths, of which I have been making cuttings, are showing flower again; but the flowers do not appear as if they would come to much. In striking the cuttings the great point is to

take care of the tender foliage till roots are formed, after which the plants are safe. For the special purpose of striking a stock of Poinsettias, I have a small glass frame, about 2 ft. square, placed inside the house in which the plants are grown. It is set on a bed of sand, where the bottom-heat is about 80° or 85°, and is filled with small 3-in. pots, containing a light, sandy compost, when a batch of cuttings is to be taken off, and they are made and dibbled in, one in a pot, straight off, and the frame shut down close, or nearly so, till they are rooted, which takes about a fortnight. I never take the cuttings off with a heel, as is usually recommended, but always at the third joint, where the wood is soft and tender, and they root without fail—never a cutting damps off. The close, moist frame and tolerably high top and bottom-heat keep the leaves fresh; in fact, they never cease growing, and roots are soon formed. When they are fairly struck, more and more air is given, till in a week or so the plants are lifted out of the frame, and, after standing for a few days on the bed of the stove, in order to harden them off a little, they are potted in their flowering pots at once. For single plants, 5-in. pots are used, and when several plants are put together, the pots are a little larger. This is for the earliest plants, struck now, and which make from 3 ft. to 4 ft. of growth; for the later-struck plants smaller sizes are used, till I get to 3 in. and 4 in. for small single plants, which flower when only a few inches high. Last winter some that were rooted in September flowered when not more than 2 in. high, showing that taking the tops off when they are just showing flowers and striking them at that stage in order to have dwarf plants, is not at all necessary; though the plan is frequently resorted to, with the result generally of lessening the size of the crown, which is checked when just in the course of development. It is far better to strike the cuttings later in the season, and grow them steadily on till they flower. The best compost for the Poinsettia is a mixture of light, fibry loam, leaf-mould, sand, and a little well-rotted manure. The whole should be rather light, for the roots do not take kindly to a heavy soil. After the plants are potted from their cutting pots, they should be grown in a stove or other structure where a night and day temperature of 75° and 85° respectively can be afforded them, according to the weather, and they should be shaded from strong sunshine. If practicable, it is better to give them a pit or part of one to themselves during the season of growth, like other subjects of which a stock is grown; but if the general stove only be available for the purpose, they must be placed where they will receive plenty of light and air. The fault of the Poinsettia is that it is apt to lose its foliage if not cared for, and then half its beauty is gone. The foliage is very ornamental and luxuriant, and much enhances the beauty and value of the plant when used for house decoration. Provided the pots have been well drained—an important matter—water, of the temperature of the house, should be applied freely to the roots during the growing season; but as winter approaches a little discrimination is necessary to avoid making the soil sour by giving too much, otherwise the roots rot, and the plant droops and the leaves soon drop off. At least, overwatering and deficient drainage appear to be the causes of the Poinsettia disease, which is much like that which affects the Calceolaria. Every season some of the plants go off suddenly just when they are in flower. In order to develop the bracts properly, the plants must have a tolerably high temperature throughout the winter, say from 65° night to 75° by day, except when the weather is very severe, when the night temperature may be lowered 4° or 5°. After the crowns are fully developed the plants may safely be transferred to a cooler house, but not to a cold greenhouse, to harden them a little, after which they will endure the temperature of rooms for a long while, either in a cut state or in pots.

CHIEF.

A Useful White Heath.—Wherever Heaths are grown for purely decorative purposes, the kind called *Erica candidissima* will be found invaluable. It is one of the easiest to manage, is not subject to mildew, grows with great freedom, and if after the growth is finished the plants be placed in some sheltered, partially shaded position in the open air for a few weeks to ripen their wood, every little twig will be covered with pure white bell-shaped flowers, which are invaluable for bouquet making, as when mounted on wire they keep long in a fresh condition.—E. HOBDAK.

TREES AND SHRUBS.

THE GIANT ARBOR-VITÆ.

(THUJA GIGANTEA).

THIS rapid-growing, hardy, and graceful Conifer was introduced into Britain in 1854 from California, where it is said to grow to a height of 150 ft. Its foliage is glossy and of a lively green colour. The branches which alternate at irregular distances on the stem are tapering and pliable. The stem itself is erect, forming wood freely from the base upwards, and judging from its appearance it bids fair to become valuable as regards timber, which is said to be fine-grained and durable. It is used for building and other purposes by the Indians and colonists on the coast of North America, and the natives also manufacture the inner bark into various useful materials. It is called by the colonists the yellow Cypress, the wood being of a yellow colour. This Thuja has been widely and extensively distributed since its introduction, and has proved to be one of the most useful of evergreens for forming screens and shelter hedges, either for shutting out unsightly objects, or for warding off rough winds. It is a suitable and ornamental plant with which to adorn a lawn or pleasure ground, and no Pinetum should be without specimens of it. It is also valuable when planted to form an ornamental arbour, its long flexible branches admitting of being bent and trained to form an arch with but little trouble, and when tall bushy plants are used a living evergreen arbour may be established almost at once. It is one of the easiest of Conifers to transplant; indeed, with care it will succeed when moved at almost any season of the year: it is at home, too, in all kinds of soils, and it is thoroughly hardy. Now that it may be bought tolerably cheap, it would perhaps be worth while to introduce it into newly formed plantations with a view to test it in the future as a timber tree for commercial purposes. The tallest specimens in this country with which I am acquainted are from 35 ft. to 40 ft. high; if any of your readers possess taller trees, records of such would be interesting. Of this tree there are at least two distinct varieties in the trade; one is of an erect-growing habit with brighter green foliage than that of the type, the other is a variegated variety. Conifers, however, never look more beautiful than when of a true self colour, say either green, glaucous, or golden. Weeping Conifers, too, are desirable; I am not aware that there is a weeping form of this Thuja in the trade; I, however, possess one. It was discovered amongst other Thujas in our nursery about eight years ago: it is

now 12 ft. high, its branches are long and horizontal; the branchlets, which are from 12 in. to 15 in. long, hang in a true pendulous manner; in fact, many of them are quite vertical. This plant is, I think, destined to grow into a unique specimen.
G. B.

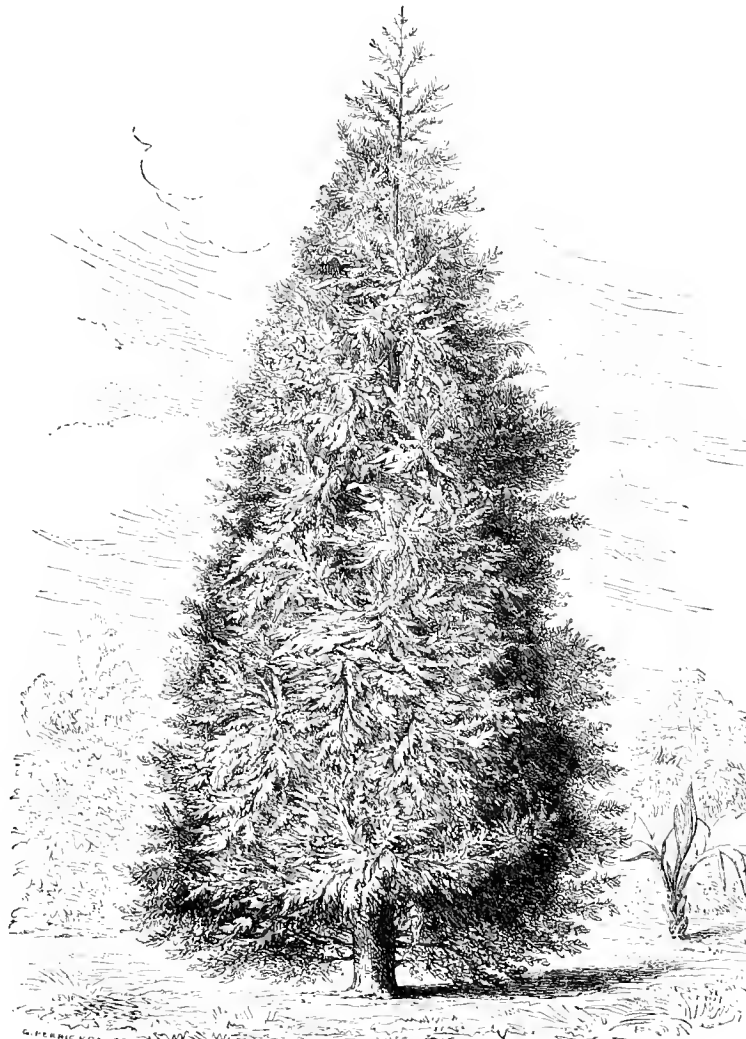
NOTES ON THE FRUITING OF THE HOLLY.*

BY JAMES M'NAB.

IN my report for the month of May (see page 528) I allude to the Holly as producing this year an amount of flower-buds rarely seen in the Botanic Garden, and the same seems to be general all

over Scotland, a circumstance probably owing to the trees not being exhausted last year, through fruit bearing. At this time (June 14) numerous blooms are open, and many of the plants white, some with fertile and others with non-fertile flowers, the latter in every instance being the most conspicuous. This mass of blossom must not, however, lead us into the belief that the trees will all be covered with fruit at Christmas; but a good crop I think may be looked for. Fertile and non-fertile trees being now easily recognisable (although not generally known), a few observations regarding them may not be unacceptable. Perhaps the most conspicuous of the fruit-bearing kinds now noticeable in a flowering condition consist of about one-third of the common green variety, nearly every plant of the varieties known as Hodgens' Holly, the Leather-leaved Holly, the Green Weeping and Moonlight Hollies, also all the large plants of the common variegated Golden and Silver Hollies, and many others. After a careful inspection of all the Hollies in the Botanic Garden, which now amount to many hundreds exclusive of hedges, I find that all those which we do know as annually producing fruit at Christmas are likely to be covered with fruit this year again (unless prevented by certain circumstances, concerning which there was much discussion last winter). On close inspection I find, as might have been expected, that

those Hollies, now covered with bloom, but on which no berries had ever been observed, possess stamiferous flowers only, while on all the known berry-bearing plants the ovule is generally far advanced before the buds are sufficiently open for fertilisation, and when they do expand, although all the anthers are formed, they appear abortive. The stamens in such flowers are all more or less curved backwards, while with the pollen-bearing plants, the stamens are all more or less upright, and densely covered with pollen, in such flowers the rudimentary female organ consists of a small barren, flattened ovary with four little projecting points on the apex, in all these cases the corolla always falls off entire, having the four upright stamens adhering to it, while in that of the fruit-bearing plants, the petals do not fall off entire, but break off into separate segments by the

The Giant Arbor-vitæ (*Thuja gigantea*).

* Read before the Botanical Society of Edinburgh, June 14, 1877.

gradual swelling of the young ovary. As I have not been able to find a single plant amongst all the original variegated Gold and Silver Hollies, bearing perfect stamiferous flowers, it is therefore evident that all these large variegated plants have been propagated originally from one stock, either by grafts, layers, or cuttings. The same observation also applies to the Hodgens' Holly, and the other pistiliferous kinds. Of recent years, variegated and other seminal varieties have been raised in various parts of the country, but none of the variegated forms have the robust character of the original sorts. It is therefore probable that both stamiferous and pistiliferous plant may be found amongst them, as instanced by the black-twigg'd silver-striped variety all being males. The blooms of the different named varieties vary much; perhaps those with the most prominent flowers, both for size and purity, are those produced on the Ilex Shepherdi, *I. nobilis*, and *I. atrovirens*, all of which are stamiferous plants, with large green leaves. The green Hedgehog Holly, and the variegated variety known as the Golden Queen Holly, with numerous others, are also stamiferous. In no instance have I been able to find a plant bearing flowers having both sexes complete on the same root. Owing, however, to the quantity of seedlings now raised, I do not see why this should not sometimes occur. In some cases a few solitary berries have been observed, but as such plants were not marked at the time, it is not easy now to distinguish them. Mr. Johnston, of the Lawson Company, has been kind enough to furnish me with the following list of Hollies now in a flowering condition in the Golden Acres Nursery, arranged under their respective heads.

Male Flowering Hollies.

<i>Ilex alicornis</i>	<i>Ilex ferox argentea</i>	<i>Ilex Silver Queen</i>
<i>nobilis</i>	" <i>aurea</i>	<i>robusta</i>
Shepherdi	<i>myrtifolia major</i>	<i>laurifolia aurea</i>
<i>angustifolia</i>	<i>ovata</i>	Wateriana
<i>ciliata major</i>	<i>serratifolia</i>	<i>pieta</i>
<i>crispa</i>	<i>pectinata major</i>	Golden Queen
<i>ferox</i>		

Female Flowering or Fruit-bearing Hollies.

<i>Ilex grandifolia</i>	<i>Ilex pendula</i>	<i>Ilex Lawsoniana</i>
<i>heterophylla</i>	<i>rotundifolia</i>	<i>marginata</i>
" <i>magna</i>	<i>Whittingtoniensis</i>	<i>media pieta aurea</i>
Hodgensii	<i>pendula purpurea</i>	<i>balearica</i>
<i>laurifolia</i>	<i>angusti-marginata</i>	

Hollies, producing Male and Female Flowers on Different Plants, or nearly Allied Varieties.

Common Green Holly	<i>balearica nigrescens</i>	<i>aurantiaca</i> (Moonlight)
<i>marginata</i>		

The Tulip Tree (Liriodendron) at Home.—The articles on the Tulip tree in your paper suggest to me that a few notes from its native wilds might be of interest to your readers. The Tulip tree, or Poplar, as it is generally termed here, is one of our most common as well as most useful trees for ornament, shade, and lumber. Within the last decade, millions of fine specimens of this grand tree have been ruthlessly destroyed and cut into the lumber which constitutes the major part of many a cosy home. Timber is no object, and the destruction still goes on; portable mills are plentiful, and in a score or two of years this beautiful tree will have disappeared from our forests. It seems most congenial to hilly, broken land, where it attains its greatest size. The valleys and hills of the Ohio and Mississippi appear to be its native home. Wood, in his botanical works, gives an account of a tree 23 ft. in circumference at 4 ft. from the ground, and 125 ft. high, growing in Indiana. Years ago, when thousands of acres that are to-day in grass and grain were in their primeval woodland dress, broken only here and there by a small farm, there was a tree a mile or so from my (Kentucky correspondent of "Country Gentleman") father's house, in this county, 10 ft. in diameter, and 140 ft. high. Alas! the woodman spared not that tree, and this king of all its race has gone the way of all things earthly. Trees 4 ft. or 5 ft. in diameter are abundant. The kind known as White or Blue Poplar is very tough, and will not split; the Yellow kind makes good rails, shingles, &c., and above ground compares favourably with our best lasting woods, but will soon rot in the ground; it is one of our earliest to put forth leaves, which quickly grow to their full size; they are now (April 21) about one-third grown, and already make quite a shade. The flowers in dry weather accumulate several drops of honey on the petals and sepals, and are generally sought after by the average small boy, bees, and animals that have a sweet tooth. The Yellow Poplar grows rapidly from seed, and, where left alone, soon makes a beautiful shade-giving tree.

THE LIBRARY.

A HISTORY OF FERNS.*

THE veteran ex-curator of Kew Gardens seems determined to "die in harness," if we may use such an expression, for, in spite of failing sight, and the many difficulties which this must entail, we have here another book upon the subject of Ferns, to which we may truly say the author has devoted his life. From 1841 until the present time Mr. John Smith has written upon the subject of Ferns; his extensive Fern herbarium, which is now incorporated with the large collection of Ferns in the British Museum, was commenced in 1829; while, with regard to his connection with the cultivation of these ever-popular plants, Mr. Smith himself speaks as follows in the volume now before us:—"In 1823 the collection in the Royal Botanic Garden, Kew, came under my care; it then consisted of about forty hardy species, British and foreign, and about the same number of tender exotics, the latter dispersed in various hot-houses. In 1825 I arranged the tender ones in a group at the end of one of the then lean-to houses, the space they occupied being 12 ft. by 6 ft.; these formed the nucleus of the present great collection." Any one reading this, and visiting what Mr. Smith truly calls "the great collection" now in Kew Gardens, will find in it a striking illustration of the oft-quoted line, "What great events from trivial causes spring." We do not suppose that any one will think Mr. Smith "egotistical" in giving the particulars which he has set down regarding his connection with the study of Ferns; they are useful as showing that he has availed himself fully of the many opportunities which his connection with Kew has afforded him; and it is a matter of some regret that others similarly situated have not made an equally good use of their privileges. In the work before us Mr. Smith gives a general and comprehensive sketch of his arrangement of the genera of Ferns, with characters of the genera, remarks on their relationship to each other, and many other particulars. We doubt whether systematists will be much influenced by the proposed scheme; but it is interesting to have the ultimate views of so extensive an observer placed upon record, and the future historian of pteridology will find a reference to Mr. Smith's volume essential to a complete sketch of the subject. Not the least valuable part of the book are the thirty admirable plates from the pencil of Mr. W. H. Fitch, illustrating the characters of the tribes. As a work which appeals primarily to the botanist rather than the horticulturist, any detailed or critical notice of it in our columns would be out of place, but we can recommend it to the attention of our botanical readers.

History of a Flower Mission.†—This is a reprint, in a very small form, of the exhaustive article on flower missions by Miss Constance O'Brien, which appeared in THE GARDEN in March last. It will meet the wants of persons interested in flower missions, and is of a size suitable for enclosure in an ordinary envelope. It pleads the cause and explains the aim and working of flower missions in a full and clear way.

Nisbet's Garden Account Book (Fawcett, Sleaford) will be found useful by all who have to furnish a debtor and creditor account of what their gardens produce. It contains blank columns for vegetables, salads, herbs, tart fruits, fruits for preserving, dessert fruits, cut flowers and plants; also a weekly labour account, columns for ice, coal, coke, manure, sundries, memoranda, a balance sheet for the week, and weather table; also space for Covent Garden prices. A bill of what can be furnished is taken to the cook, house-keeper, and butler every morning; they put their mark against whatever they want, and indicate the quantities which they require, and from these bills the account book is made up weekly. This system has been practised by Mr. Nisbet for fourteen years, and during that time has given entire satisfaction.

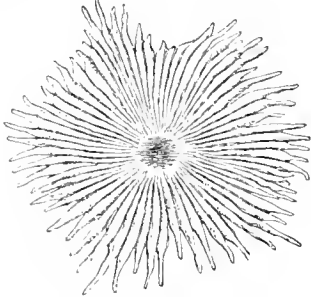
Cut-leaved Walnut (Juglans regia laciniata).—This, as will be seen by the woodcut (see p. 95), is a tree of beautiful habit and moderate growth. The divisions in the leaf are very elegant, and give a kind of transparency to the foliage, which is very pleasing. It forms a beautiful lawn tree, and if judiciously pruned or stopped, it may be grown to assume any form required. It is a great favourite with me.—CHAS. LEE, *Hammersmith*.

* *Historia Filicium*; an Exposition of the Nature, Number, and Organography of Ferns. By JOHN SMITH, A.L.S. London: 1875.

† Odell & Ives, 18, Princess Street, Cavendish Square.

STAR-LIKE HAIRS ON PLANTS.

IN the interesting article on this subject which appeared in THE GARDEN of May 26, I find no reference to the very characteristic stellate hairs on the leaf of the Sea Buckthorn (*Hippophaë rhamnoides*). The modified cells with which the cuticle of this leaf is furnished differ markedly from the forms figured in the article alluded to, and are peculiarly instructive as adding a well-defined link to the chain connecting the single hair and the scale. I chanced to have in my possession a leaf of *H. rhamnoides*, which had been given me a few days previously by a botanical friend, and I send you a sketch of one



Stellate Hair of *Hippophaë rhamnoides*.

of its stellate hairs removed from the cuticle, and viewed by transmitted light with the aid of the microscope. It will be observed that whereas the hair of *Alyssum spinosum* differs from that of *A. alpestre* in possessing a larger number of rays, in the hair of *Hippophaë rhamnoides* the rays are so much multiplied and so closely packed that the scale-like appearance predominates, and the stellate form is only preserved at the tips of the rays, or at most for a distance of one-fourth of their length. The extreme diameters of several specimens which I measured ranged from one hundred to sixty-six parts of an inch, and in each of these little stars I counted from sixty to seventy rays. A $\frac{1}{2}$ -in. objective will be found sufficiently high for their examination. BOVERTON REDWOOD.

RARE HARDY AQUATIC PLANTS.

Thalia dealbata which grows so freely in the greenhouse tank would, I think, often succeed out-of-doors in the warmer counties if given, a sheltered and sunny position. Some plants which I tried out-of-doors in a running stream made a more vigorous growth than I have observed them make in stoves, but they did not flower; I have,



Thalia dealbata.

however, noticed it flowering in Austria in a not very warm district. Would some American reader of THE GARDEN kindly say how far north it grows well there? I have succeeded perfectly with the *Helonias* in water—a beautiful thing; and I am trying the *Nelumbium speciosum*, which I have reason to believe is much hardier than is generally supposed. V.

Double African Lily.—This interesting form of an old garden favourite has lately been introduced by Mr. B. S. Williams, of the Victoria Nurseries, Holloway, where it is now in flower. Its precise value, as compared with the old form, cannot yet be stated, but it will probably last longer in flower and commend itself to many as worthy of trial.

SOME POINTS IN BOTANICAL NOMENCLATURE.

PROF. A. DE CANDOLLE has addressed a letter to M. A. Cogniaux, of Brussels, in answer to one from that botanist requesting his opinion on certain points connected with botanical nomenclature, and the correspondence is published in the "Bulletin" of the Belgian Botanical Society (t. xv., p. 477). The special cases stated by M. Cogniaux have reference to the proper authority to be appended to the names of species under the following circumstances which frequently occur:—1st. When an author finds a new genus on an old species, but does not actually place the new generic name in combination with the old specific name. 2nd. When an author enumerates several already known species as referable to a genus, either new or old, but (as before) does not give the combinations of names to designate each species. 3rd. When an author reduces one or more genera to synonyms under another genus, and the species of the former thus becomes species of the latter. In all these cases ought the new combinations of generic and specific names, which result from carrying out the ideas of the authors, to be followed by their names, as authorities?

M. De Candolle's reply is prefaced by some remarks which appear very just and pertinent. He recalls to mind, what is too often forgotten, that the mention of an authority after a name is not an homage rendered to the author; it conveys neither praise nor blame, and is in no way connected with the merits of botanists; it is simply a reference. He observes that "most of the names made by an author may fall into synonyms, whilst his reputation may remain immense if he has shown himself exact, clear, judicious, and profound. On the other hand, the author of bad descriptions is placed in the lowest rank of botanists, though, either from an accident of time or because he has adopted the genera of a good author, his names may stand. He considers that the true principle which ought to decide all such cases as the above is this: "Never to make an author say that which he has not said."

Tried by this canon the answer to the question asked in relation to the above difficulties will be a negative one, for in no case has the author published the new combination necessary to characterise a species, and to attribute such to him is to make him say what he has not said. In the first case, what the author has done is to refer a species to a new genus and to make a generic name. He has not said whether or not he approves of keeping up the old specific name; perhaps on farther consideration he would have rejected it, because he would have considered it to contradict the characters of the new genus, or because in his view it ought not to be admitted in the old genus. In the second and third cases, instances are quoted showing how unjust it might be to attribute to an author specific combinations of names which he has never actually made. It would then frequently happen that an author would be made responsible for far more species than he allows to constitute his genus; whilst in other cases, where there has been a union of several genera, great confusion would arise from two or more very different plants bearing the same name. In this latter case it is impossible to know what names the author would have kept up or proposed, and he ought not to be cited for names which he must have in part rejected. A point worthy of special note in the matter is this: that M. De Candolle assumes, as a basis of his argument, that an author who transfers a species to another genus is in no way bound to adopt the specific name which it previously bore. These views of the distinguished botanist of Geneva appear to be based on so solid and just an appreciation of the real bearings of the question, that they will probably commend themselves to all engaged in systematic botany. The practice in this country, however, at present, especially with the Kew school, is partially inconsistent with the plain rule above given.—"Journal of Botany."

A House-top Garden.—The roof of a house might in many cases be made a pleasant place. In the East the people live a great deal on house-tops. There is no reason why we should not utilize our house-roofs in some way in this country. They might be converted into gardens, conservatories, aquaria, or anything of the kind, giving additional room to a house, as well as an additional charm. The Americans are beginning to utilize house-tops in this way. The plan has been carried out at the Palmer House, Chicago (according to the "Farmer"), and a portion of the roof of that hotel is now covered with a magnificent conservatory. The structure is entirely of glass and iron; and as it is built on an extension, its location is such that it is entered directly out of the fifth floor corridor of the main edifice, which rises two stories above. A fine collection of tropical and rare plants has been provided, and the regular heating apparatus of the house supplies ample warmth. The conservatory is open to guests of the hotel, and furnishes a delightful resort. In this country the plan of garden roofs has been ably advocated by Mr. Eassie, in his popular little book, "Healthy Houses."

LOW'S NECKLACE VANDA.

(VANDA LOWI).

This species is one of the most distinct of all the Vandas, and, although as yet not common, it has several times bloomed and been exhibited in this country. Although a strong-growing plant it flowers in a comparatively small state, as is shown by a flowering specimen of it, which was exhibited at a recent meeting of the Royal Horticultural Society, by Mr. Elliott, of Clapton. The plant attains a height of from 2 ft. to 10 ft., and has distichous, leathery leaves, 2 ft. or more in length. We have other Vandas from Malaysia of similar habit, notably *V. Batemani*, from the Philippines, which grows in co-partnership with the glossy-leaved *Cypripedium levigatum*. There are one or two characteristics about Low's Vanda, however, possessed by no other species. The flowers are arranged on a slender, zigzag raceme, which not infrequently attains a length of from 6 ft. to 8 ft., and when furnished with buds somewhat resembles an elegant necklace, finally changing to a wreath of gold and purple-blotched blossoms, as shown in the annexed engraving, with the trifling exception that the slender flower-stem is densely hairy or hispid and not smooth as therein represented. Perhaps the most singular point in the history of this curious plant, however, is the production of flowers of two distinct kinds on one spike. At the extreme base of the flower stem, say 1 ft. or more from the leaf-axil whence it emerges, two flowers are produced at about 3 in. or more apart. These flowers are golden-yellow, the blotches being very small and scarcely visible, and having moreover a delicate perfume; then comes a space of 12 in. or 15 in., and then the ordinary flowers, the petals of which are rather broader than the basal yellow flowers, and are heavily and richly blotched with crimson-purple. This production of two distinct sorts of hermaphrodite flowers on the same spike is, however, only one of numerous instances of the kind now known to botanists. The spikes, which are often longer than the plant which produces them, occasionally trail along the ground, thus forming a ladder to nectar-hunting beetles and other insects, just as do the long-tailed petals of *Cypripedium caudatum*, or the singularly bearded inflorescence of *Attacia cristata*. The plant, which is one not at all difficult to cultivate, is propagated by means of offsets, which sometimes make their appearance on strong specimens.

Low's Necklace Vanda (*V. Lowi*).

PLATE LXXIX.

AGALMYLA LONGISTYLA.

This miniature creeping Gesnerad is a native of Java. From its peculiar habit it is well adapted for particular positions; when suspended from the roof in a stove, where plants of small growth can with advantage be used, it gives a more furnished appearance to the structure without injuriously shading the other occupants, and such a situation appears to suit it well and favours the free production of bloom. Like most other plants the time of its flowering is considerably influenced by the course of treatment to which it is subjected,

but, it is generally in perfection during the latter months of the year, a time when its scarlet or bright red flowers are very effective; they are comparatively large for the size of the plant which when well grown produces them freely. Being of a creeping habit, the stems cling closely to any surface on which it is grown, not unlike the rhizomes of some Ferns, such as the weaker-growing *Davallias*; the leaves, which are produced on short stalks, are ovate in shape and have a velvety appearance. It may be cultivated in a pot, but as it is a true Epiphyte it does best on a block of wood, in which way it can be better hung up, and as we have comparatively few subjects of a similar character and so suitable for the purpose, it is well to utilize it in this way; its flowers in such a position are also seen to the best advantage. As regards culture I procure a rustic-looking piece of dry Oak wood about 6 in. wide, 1 ft. in length, and 2 in. in thickness; if charred it will look none the worse and will last longer, a consideration in the case of such plants as this that have clinging roots that adhere tightly to whatever they fasten upon, and cannot be removed without injury; fix a copper wire by means of copper nails to each end of the block to hang it up by, cut a piece of good fibrous Orchid peat about an inch thick and the same size as the block; shake as much of the earthy matter out of it as can be done without breaking it; fasten it on the upper surface of the block with fine copper wire; shake a handful of silver sand over the part, which will help to keep it from getting sour; then take a plant that has been either grown in a pot, or cut several of the creeping stems with several leaves to each, and tie them with wire or bast on the surface of

the peat; give water immediately, and shade until the roots have got hold; these operations should be performed in March before growth has commenced. All through the growing season the roots must be kept moist, and even in winter they must never be allowed to get too dry. During spring and summer the night temperature should range from 70° to 75°, and from 80° to 85° in the daytime. In winter it may vary from 60° to 70° and a few degrees higher in the daytime. The shoots require little training, simply bending about in such a way as to cover the block. As soon as the flowers make their appearance do not allow more water to lodge upon them than can be avoided. It is a heat-loving subject, and neither when in flower nor at any other time should it be submitted

Onosma echioides.—While walking over the Karsa in the neighbourhood of Sesana in the Austrian Tyrol, I was much pleased to find a lovely *Onosma*, which I think will prove to be the true *O. echioides*, a plant I believe not in cultivation. It is very similar in general appearance to *O. taurica*, but it has white flowers instead of yellow. Perhaps some of your correspondents may have seen it, and can tell me whether it is the true *O. echioides* or not.—A. Z. P.

Barke's Tree Fern (*Cyathea Barkei*).—A tree of rare grace, which may now be seen growing freely in Mr. Williams' Victoria Nursery, at Holloway. This is one of the finest of the arborescent Ferns yet discovered, and will probably succeed in the temperate fernery. The stems are stout and erect, bearing a rich head of deep green fronds, which are twice or three divided, and which have a graceful pendulous habit. Native of South Africa.—H. H.



THE SCARLET FOOT BLOSSOM *AGALMYLA LONGISTYLIS*.

to a low temperature, or cold draughts. With me the plant was never at any time attacked by insects. T. BAINES.

WREATHS FOR DEAD WALLS.

So long as we have dead walls, some means of modifying their severity is desirable. In landscape gardening the dead wall is often a serious obstacle to deal with, and, indeed, so it is in the small garden. In these, however there is sometimes a necessity for the dead wall as a dividing line or a screen, whereas in large country places they are often made where they are needless and objectionable. In small gardens the dead walls, usually bare along the top, may be gracefully wreathed with either climbing shrubs or fruit trees, as shown



in the accompanying cut. Single stems are easily taken up the wall and trailed along two or three firmly fixed, but slender galvanised wires. In this way much of the harsh aspect of the upper part of the wall is removed, and in the case of fruits more tangible advantages result. The accompanying sketch was made on the road from Vincennes to Montreuil, a country in which good Grapes are gathered on the trellis; ornamental subjects for such wires are numerous enough from Wistaria to Clematis montana.

THE PLANT-LORE OF SHAKESPEARE.

(Continued from p. 498).

Onions.

- (1) *Bottom*. And most dear actors, eat no Onions nor Garlick, for we are to utter sweet breath.
Midsummer Night's Dream, act iv., sc. 2.
- (2) *Lafeu*. Mine eyes smell Onions, I shall weep anon:
Good Tom Drum, lend me a handkercher.
All's Well That Ends Well, act v., sc. 3.
- (3) *Enobarbus*. Indeed the tears live in Onion that should water this sorrow.
Antony and Cleopatra, act i., sc. 2.
- (4) *Enobarbus*. Look, they weep,
And I, an ass, am Onion-eyed.
Ibid., act iv., sc. 2.
- (5) *Lord*. And if the boy have not a woman's gift
To rain a shower of commanded tears,
An Onion will do well for such a shift,
Which in a napkin being close conveyed
Shall in despite enforce a watery eye.
Taming of Shrew (Introduction).

There is no need to say much of the Onion in addition to what I have already said on the Garlick and Leek, except to note that Onions seem always to have been considered more refined food than Leek and Garlick. Homer makes Onions an important part of the elegant little repast which Hecamede set before Nestor and Machaon:—

Before them first a table fair she spread,
Well polished and with feet of solid bronze;
On this a brazen canister she placed,
And Onions as a relish to the wine,
And pale clear honey and pure Barley meal.
Iliad, B. xi. (Lord Derby's Translation).

The name comes directly from the French *oignon*, a bulb, being the bulb *par excellence*, the French name coming from the Latin *unio*, which was the name given to some species of Onion, probably from the bulb growing singly. It may be noted, however, that the older English name for the Onion was *Iue*, of which we may perhaps still have the remembrance in the common "Inions." The use of the Onion to promote artificial crying is of very old date, Columella speaking of "lacrymosa caepe," and Pliny of "caepis odor lacrymosus." There are frequent references to the same use in the old English writers.

Orange.

- (1) *Beatrice*. The count is neither sad nor sick, nor merry nor well; but civil count, civil as an Orange, and something of that jealous complexion.
Much Ado About Nothing, act ii., sc. 1.
- (2) *Claudio*. Give not this rotten Orange to your friend.
Ibid., act iv., sc. 1.
- (3) *Bottom*. I will discharge it either in your straw-coloured beard, or your Orange-tawny beard.
Midsummer Night's Dream, act i., sc. 2.
- (4) *Bottom*. The ouzel cock so black of hue
With Orange-tawny bill.
Ibid., act iii., sc. 1.
- (5) *Menenius*. You wear out a good wholesome forenoon in hearing a cause between an Orange-wife and a fossot-seller.
Coriolanus, act ii., sc. 1.

I should think it very probable that Shakespeare may have seen both Orange and Lemon trees growing in England. The Orange is a native of the East Indies, and no certain date can be given for its introduction into Europe. Under the name of the Median Apple a tree is described first by Theophrastus, and then by Virgil and Palladius, which is supposed by some to be the Orange, but as they all describe it as unfit for food, it is with good reason supposed that the tree referred to is either the Lemon or Citron. Virgil describes it very exactly—

Ipsa iugens arbor, faciemque simillima lauro
Et si non alium late jactaret odorem
Laurus erat; folia haud ullis labentia ventis
Flos ad prima tenax.—*Georgic* ii., 131.

Dr. Daubeney, who very carefully studied the plants of classical writers, decides that the fruit here named is the Lemon, and says that it "is noticed only as a foreign fruit, nor does it appear that it was cultivated at that time in Italy, for Pliny says it will only grow in Media and Assyria, though Palladius in the fourth century seems to have been familiar with it, and it was known in Greece at the time of Theophrastus." But if Oranges were grown in Italy or Greece in the time of Pliny and Palladius, they did not continue in cultivation. Europe owes the introduction or re-introduction to the Portuguese, who brought them from the East, and they were grown in Spain in the eleventh century. The first notice of them in Italy was in the year 1200, when a tree was planted by S. Dominic at Rome. The first grown in France is said to have been the old tree which lived at the Orangery at Versailles till November, 1876, and was called the Grand Bourbon. "In 1421 the Queen of Navarre gave the gardener the seed from Pampeluna; hence sprang the plant, which was subsequently transported to Chantilly. In 1532 the Orange tree was sent to Fontainebleau, whence, in 1684, Louis XIV. transferred it to Versailles, where it remained the largest, finest, and most fertile member of the Orangery, its head being 17 yds. round." It is not likely that a tree of such beauty should be growing so near England without the English gardeners doing their utmost to establish it here. But the first certain record is generally said to be in 1595, when (on the authority of Bishop Gibson) Orange trees were planted at Beddington, in Surrey, the plants being raised from seeds brought into England by Sir Walter Raleigh. The date, however, may be placed earlier, for in Lyte's "Herbal" (1578) it is stated that "In this country the Herboristes do set and plant the Orange trees in their gardens, but they beare no fruite without they be wel kept and defended from cold, and yet for all that they beare very seldome." There are no Oranges in Gerard's catalogue of 1596, and though he describes the trees in his "Herbal," he does not say that he then grew them or had seen them growing. But by 1599 he had obtained them, for they occur in his catalogue of that date under the name of "Malus orantia, the Arange or Orange tree," so that it is certainly very probable that Shakespeare may have seen the Orange as a living tree.

As to the beauty of the Orange tree, there is but one opinion: its handsome evergreen foliage, its deliciously-scented flowers, and its golden fruit:—

A fruit of pure Hesperian gold
That smelled ambrosially.

Tennyson.

at once demand the admiration of all. It only fails in one point to make it a plant for every garden: it is not fully hardy in England. It is very surprising to read of those first trees at Beddington, that "they were planted in the open ground, under a movable covert during the winter months; that they always bore fruit in great plenty and perfection; that they grew on the south side of a wall, not nailed against it, but at full liberty to spread; that they were 14 ft. high, the girth of the stem 29 in., and the spreading of the branches one way 9 ft., and 12 ft. another; and that they so lived till they were entirely killed by the great frost in 1739-40."—(Miller). These trees must have been of a hardy variety, for certainly Orange trees, even with such protection, do not now so grow in England, except in a few favoured places on the south coast. There is one species which is fairly hardy, the *Citrus trifoliata*, forming a pretty bush, with sweet flowers, and small but useless fruit (seldom, I believe, produced out-of-doors); it is often used as a stock on which to graft the better kinds, but perhaps might be useful for crossing, so as to give its hardiness to a variety with better flower and fruit.

Commercially the Orange holds a high place, more than 20,000 good fruit have been picked from one tree, and England alone imports about 2,000,000 bushels annually. These are almost entirely used as a dessert fruit and for marmalade, but it is curious that they do not seem to have been so used when first imported. Parkinson makes no mention of their being eaten raw, but says they "are used as sauce for many sorts of meats, in respect of the sweet sourness giving a relish and delight whereinsoever they are used;" and he mentions another curious use, no longer in fashion, I believe, but which might be worth a trial:—"the seeds being cast into the ground in the spring time will quickly grow up, and when they are a finger's length high, being plucked up and put among Sallats, will give them a marvellous fine aromack or spicy tast, very acceptable."

Osier—(See Willow).

Oxlips.

- (1) *Perhita*. Bold Oxlips, and
The Crown Imperial. *Winter's Tale*, act iv., sc. 3.
- (2) *Oberon*. I know a bank whereon the wild Thyme blows,
Where Oxlips and the nodding Violet grows.
Midsummer Night's Dream, act ii., sc. 2.

The "bold Oxlip" (*Primula elatior*) is so like both the Primrose and Cowslip that it has been by many supposed to be a hybrid between the two. Dr. Hooker, however, considers it a true species. It is a handsome plant, and is a great favourite in cottage gardens.—(See Cowslip and Primrose).

Palm Tree.

- (1) *Rosalind*. Look here what I found on a Palm tree.
As You Like It, act iii., sc. 2.
- (2) *Hamlet*. As love between them like the Palm might flourish.
Hamlet, act v., sc. 2.
- (3) *Voluntio*. And bear the Palm for having bravely shed
Thy wife and children's blood.
Coriolanus, act v., sc. 3.
- (4) *Cassius*. And bear the Palm alone.
Julius Cæsar, act i., sc. 2.
- (5) *Painter*. You shall see him a Palm in Athens again, and flourish
again with the highest.
Timon of Athens, act v., sc. 1.

Two very distinct trees are named in these passages. In the last five the reference is to the true Palm of biblical and classical fame, as the emblem of victory, and the typical representation of life and beauty in the midst of barren waste and deserts. And we are not surprised at the veneration in which the tree was held, when we consider either the wonderful grace of the tree, or its many uses in its native countries, so many that Pliny says, that the Orientals reckoned 360 uses to which the Palm tree could be applied. Whether Shakespeare ever saw a living Palm tree is doubtful, but he may have done so—(see *Date*). Now there are a great number grown in the large houses and botanic gardens, the Palm-house at Kew showing more and better specimens than can be seen in any other collection in Europe; even the open garden can

now boast of a few species that will endure our winters without protection. *Chamaerops humilis* and *Fortunei* seem to be perfectly hardy, and good specimens may now be seen in several gardens; *Corypha australis* is so said to be quite hardy, and there is little doubt but that the Date Palm (*Phoenix dactylifera*), which has long been naturalized in the south of Europe, would live in Devonshire and Cornwall, and that of the thousand species of Palms growing in so many different parts of the world, some will yet be found that may grow well in the open air in England.

But the Palm tree in No. 1 is a totally different tree, and much as Shakespeare has been laughed at for placing a Palm tree in the forest of Arden, the laugh is easily turned against those who raise such an objection. The Palm tree of the Forest of Arden is the Early Willow (*Salix caprea*), and I believe it is so called all over England, as it is in Northern Germany, and probably in other northern countries. There is little doubt that the name arose from the custom of using the Willow branches with the pretty golden catkins on Palm Sunday as a substitute for Palm branches.

In Rome upon Palm Sunday they bear true Palms,
The Cardinals bow reverently and sing old Psalms;
Elsewhere those Psalms are sung 'mid Olive branches,
The Holly branch supplies the place among the avalanches;
More northern climes must be content with the sad Willow.
Goethe—(quoted by Seeman).

But besides Willow branches, Yew branches are sometimes used for the same purpose, and so we find Yews called Palms. Evelyn says they were so called in Kent; they are still so called in Ireland, and in the churchwardens' accounts of Woodbury, Devonshire, is the following entry:—"Memorandum, 1775. That a Yew or Palm tree was planted in the churchyard, ye south side of the church, in the same place where one was blown down by the wind a few days ago, this 25th of November."

How Willow or Yew branches could ever have been substituted for such a very different branch as a Palm it is hard to say, but in lack of a better explanation, I think it not unlikely that it may have arisen from the direction for the Feast of Tabernacles in Leviticus xxiii., 40:—"Ye shall take you on the first day the boughs of goodly trees, branches of Palm trees, and the boughs of thick trees, and Willows of the brook." But from whatever cause the name and the custom was derived, the Willow was so named in very early times, and in Shakespeare's time the name was very common. Here is one instance among many:—

The Palms and May make country houses gay,
Lambs frisk and play, the shepherds pipe all day,
And we hear aye birds tune this merry lay—
Cuckoo, jug-jug, pee-we, to-witta-woo.

T. Nash—1567-1601.

Pansies.

- (1) *Ophelia*. And there is Pansies—that's for thoughts.
Hamlet, act iv., sc. 5.
- (2) *Lucentio*. But see, while idly I looked on,
I found the effect of Love-in-Idleness.
Taming the Shrew, act i., sc. 1.
- (3) *Oberon*. Yet marked I where the bolt of Cupid fell:
It fell upon a little western flower,
Before milk-white, now purple with love's wound,
And maidens call it Love-in-Idleness.
Midsummer Night's Dream, act ii., sc. 2.

The Pansy is one of the oldest favourites in English gardens and the affection for it is shown in the many names that were given to it. The Anglo-Saxon name was Banwort or Bone-wort, though why such a name was given to it we cannot now say. Nor can we satisfactorily explain its common names of Pansy or Pawnee (from the French, *pensée*—"that is, for thoughts," says Ophelia), or Heart's-ease, which name was originally given to the Wallflower. But besides these more common names, Dr. Prior mentions the following:—Love in Idle or Idleness (a name still remaining in Warwickshire, and signifying love in vain, or to no purpose, as in Chaucer—"The prophete David seith; if God ne kepe not the citee, in ydel waketh he that kepith it"), Herb Trinity, Three Faces Under a Hood, Fancy, Flamy, Kiss Me, Cull Me or Cuddle Me To You, Tickle My Fancy, Kiss Me Ere I Rise, Jump Up and Kiss

Me, Kiss Me at the Garden Gate, Pink of My John, and several more of the same amatory character."

Spenser gives the flower a place in his "Royal aray" for Elisa—

Strove me the grounde with Daffdowndillies,
And Cowslips, and Kingeups, and loved Lillies,
The pretie Pawnee,
And the Chevisaunce
Shall match with the fayre Flower Delicee.

Milton places it in Eve's couch—

Flowers were the couch,
Pansies, and Violets, and Asphodel,
And Hyacinth, earth's freshest, softest lap.

He names it also as part of the wreath of Sabrina—

Pansies, Pinks, and gaudy Daffadils.

and as one of the flowers to strew the hearse of Lycidas—

The White Pink and the Pansie streaked with jet,
The glowing Violet.

Parsley.

Biondello. I knew a wench married in the afternoon as she went to the garden for Parsley to stuff a rabbit.

Taming of Shrew, act iv., sc. 4.

Parsley is a common name to many umbelliferous plants, but the garden Parsley is the one meant here. This well-known little plant has the curious botanic history that no one can tell what is its native country. It is found in many countries, but is always considered an escape from cultivation. Probably the plant has been so altered by cultivation as to have lost all likeness to its original self.

Peach.

(1) *Prince Henry.* To take note of how many pair of silk stockings thou hast, viz. these, and those that were thy Peach-coloured ones!

2nd Henry IV., act ii, sc. 2.

(2) *Clown.* Then there is here one Master Caper, at the suit of Master Threepile the mercer, for some four suits of Peach-coloured satin, which now peaches him a beggar.

Measure for Measure, act iv., sc. 3.

The references here are only to the colour of the Peach blossom, yet the Peach tree was a well-known tree in Shakespeare's time, and the fruit was esteemed a great delicacy, and many different varieties were cultivated. Botanically the Peach is closely allied to the Almond, and still more closely to the Apricot and Nectarine, indeed, many writers consider both the Apricot and Nectarine to be only varieties of the Peach. We are probably indebted to the Romans for the introduction of the Peach into England. It occurs in Archbishop Ælfric's Vocabulary in the tenth century, "Persicarius, Perseoc-treow," and John de Garlande grew it in the thirteenth century, "In virgulto Magistri Johannis, pessicus fert pessica." (When I mentioned John de Garlande before, I ought to have stated that his garden was probably in the neighbourhood of Paris; but he was a thorough Englishman, and there is little doubt that his description of a garden was drawn as much from his English as from his French experience).

We all know and appreciate the fruit of the Peach, but few seem to know how ornamental a tree is the Peach, quite independent of the fruit. In those parts where the soil and climate are suitable, the Peach may be grown as an ornamental spring-flowering bush. When so grown preference is generally given to the double varieties, of which there are several, and which are not by any means the new plants that they are generally supposed to be, as they were cultivated both by Gerarde and Parkinson.

H. N. ELLACOMBE.

(To be continued).

Double Yellow Auricula.—Last spring I grew this Auricula side by side with the Double Yellow Bedford variety of it, to test which is the better one, and the latter proved to be very much superior to the former. On one truss all the blooms died off before opening out, but that one for size and doubleness was quite a marvel.—G. F., *Hexham*.

Crinum ornatum Hardy in Ireland.—This stately hardy Amaryllid (for so it has proved itself to be in the open border at Glasnevin) is very precocious in producing its floral umbels; so much so that the past month has seen it in and out of flower there. It will continue to send up flower-stems at intervals during the season till winter comes.

THE FLOWER GARDEN.

HOSE-IN-HOSE POLYANTHUSES.

IN your issue of the 5th ult. (see p. 354) you insert some observations from "A. D." respecting a new golden Hose-in-hose Polyanthus. I am the originator of these yellow Hose-in-hose Polyanthuses. The yellow colour was obtained by a Polyanthus of large size, but quite plain (I forget its name); upon that I crossed the old White Hose-in-hose, which produced several Hose-in-hose seedlings of a straw rather than a yellow colour. I worked into this the yellowest Cowslip taken from the field, and about twenty years ago I obtained a fine deep yellow, which I named Henry Wooler. Some years since I gave Messrs. Backhouse a few plants of this, and two years ago I forwarded to Mr. T. Ware, of Tottenham, some plants with other Hose-in-hose sorts raised from Henry Wooler and other plants crossed by pollen from Henry Wooler, of a deep yellow and gold colour. The only stipulation I made was, that as this Hose-in-hose strain had been raised by me at my uncle's, it should be sent out in his name, viz., as "Henry Wooler." I have now got the strain so fixed that I should think 50 per cent. of the seedlings from a Hose-in-hose will come so. The late Mr. Beaton's flat contradiction (in one of the horticultural journals some nineteen or twenty years ago) that seed of a Hose-in-hose would produce one of the same breed, led me to grow plants in pots separately, and thus made to flower early, upon which I applied the pollen of Henry Wooler; from the seed thus grown many Hose-in-hose were the result, and some few even of yellow colour.

I send you a box containing a few I am growing with one of Henry Wooler, having no doubt but that they will prove of interest. In my opinion there is no spring flower which makes one-half the display and lasts so long as the light and gay-coloured Polyanthus, and my beds have often been the admiration of old florists. This year they have not done well, having been planted in poor cold clay; but the proper mode of cultivation is to sow the seed in boxes as soon as ripe; winter in frames; in spring, prick out into beds, with some rather rich soil, overlaying a cool bottom, and the brightness of colours and vigour of the plants in the following spring will be a source of wonder and delight; some of course will flower in the year they are pricked out. I also send a flower of another seedling I raised about twenty years ago, and which I named Sadberge. Of this I have given plants to Messrs. Backhouse and Mr. Ware.

In my opinion the great aim as regards the raising of Polyanthuses should be to obtain a semi-double breeder, in order that we might have a race of double Polyanthuses. The one "A. D." named is a very old one. We have several charming gems in double Primroses raised by our ancestors (why cannot their posterity do the same?). I have upon several occasions made efforts to secure a strain by selecting those with anthers converted into petalets, and I fancy it would be as well also to try the pollen of these on plants which produce their ordinary petals crimped, and more than the normal five, but I have not a great reliance upon these latter, as in some plants the same disposition to produce excess of petals is directed into increased size of the petals, and not a multiplication of them. There can be no doubt that when a Polyanthus converts an anther into a petalet, it is concentrating its force to produce the first stage as to doubling its flowers. Some years ago I suggested that the flowers of Cowslips and Primroses should be collected and left to decay into soil, and in that state supplied to seedling Polyanthuses with the express object of feeding the plants with the elements exceptionally demanded to form petals. This suggestion was derided at the time by the editor of one of the leading horticultural papers, but my few experiments on this head left a strong impression on my mind that it did produce the effect I expected. It is a well-recognized experience that certain food and position, together with other conditions, have a marked physical power in producing certain effects, not only upon plants, but upon ourselves, and what is needed to produce a multiplicity of petals is that the proper food and conditions shall be provided. No doubt in doubling flowers a condition is often found in checking too luxuriant a growth of the woody stems of the

plants (we all recognize this in root-pruning our fruit trees), but every race of plants has its idiosyncrasy and constitutional proclivities. I have a single Primrose which in the years 1875 and 1876 produced on one side of the plant two or three flowers with an anther grown into a petal; this year I divided it, but I have not yet seen any such. Last year I had several seedlings crossed with the pollen from this plant with these petals, but I fear the seeds were not collected separately.

I made a suggestion in one of the gardening journals several years ago that if one of the double Primroses could be, by starving in bad soil, induced to revert partly to a single state, so that the style might be impregnated, a race of semi-double breeders might be obtained. At least a quarter of a century ago Mr. Wood, of the Norwood Nursery (who, all old lovers of hardy flowering plants will recollect, was in the habit of exhibiting at the Royal Horticultural Society's shows such incomparably-grown batches of hardy plants in pots), gave me a fine, double, buff-coloured Polyanthus, as he thought it would receive more attention from me than he could give it. Unfortunately I kept it too tenderly, and it was thus lost. Mr. Ivery, the then well known nurseryman, who grew and let out several new Indian Azaleas at that time, gave it to him, and stated, I think, that it had come by chance in an old garden border at Reigate. There must have been some conditions in that old border to have forced the mother plant to produce seed which developed the anther and pistil of the plant into petals and so become double, or, as in the case of my Primrose, an anther or two were thus formed into a petal, and produced seed which produced the double-flowered plant. I got a very curious seedling last year, a yellow Hose-in-hose with a flat flower-stem. It was divided into seven plants, all of which have come true. This stem is very short, with a very large truss, and the leaves grow round a centre in a very regular manner.

W. A. WOOLER.

[The specimens sent were very interesting and of great beauty—a whole family of Hose-in-Hose Polyanthus, differing strikingly in hue, size, and form, and many of them likely to be of much value as garden plants.]

NOTES ON GARDEN VEGETATION FOR MAY.*

By JAMES McNAB.

THE weather in May, particularly the early part of it, has been rather cold and backward. During the first eight days 36° of frost were registered. The lowest markings were on the 2d, 3d, 4th, 5th, 7th, and 8th, when 21°, 32°, 26°, 26°, 28°, and 24° were respectively indicated; while the six highest morning temperatures were on the 17th, 19th, 20th, 21st, 25th, and 30th, when 44°, 42°, 41°, 41°, 44°, and 45° were indicated—all being below the maximum temperatures noted during May, 1876. The wind, with a few trifling exceptions, kept in the east, but changed to the west on the 24th, and since that time vegetation has made progress, which, however, was slow owing to the dry state of the atmosphere until rain fell copiously on the 28th, which did much good. As long as the wind was in the east the foliage had a great struggle to develop itself, and it was remarkable to observe the peculiar yellow tinge of the young leaves of many deciduous trees, contrasting singularly with the dark green of the neighbouring evergreens. Judging from the state of the trees and herbaceous plants on the 31st of May, this season may be regarded as one of the latest which we have had for many years; indeed, I do not recollect ever experiencing one so backward. Still averaging about three weeks late up to the end of the month, the only species of deciduous trees on which the foliage could be said to be nearly complete were the Acer Pseudo-Platanus and the common Hawthorn; that of many others was advancing, but far from complete. For comparison with future years I shall give a list of some of the ordinary trees and the state they were in on the 31st of May; these, however, vary in different situations and exposures. Besides the Plane and Thorn just alluded to, Lime trees were only partially in leaf, and those chiefly on the south and west sides. On a few Beeches the leaves were partially expanded, but many very backward; Birch trees were covered with catkins, but none of the leaves were fully developed. Leaves were also seen on the Norway Maple, Horse Chestnuts, and Purple Beech, but much later than usual, while the Elm, Walnut, Chestnut, Sorbus, Lombardy, and other Poplars, Willows, Oak, Ash, and Sugar Maple were all very backward, some only breaking their buds, while no foliage was observed on the

Robinias, Celtis, Ostrya, deciduous Magnolias, Tulip trees, Platanus, Taxodium distichum, &c. On the 31st of May, with the exception of the Plane and Thorn just alluded to as being in leaf, and those where no foliage was visible, most of the intermediate ones, from the small state of the young shoots and buds, had a peculiar network appearance, light being seen through every twig and leaf, a sight rarely observable in this part of the country at such an advanced period of the year.

Besides forest trees it may be remarked that many dwarf, shrubby, and herbaceous plants have been also very late in flowering, and where this is the case it will be observed that their duration in a perfect flowering condition is often shorter than when flowers come forth at the natural period. This is particularly noticeable in the case of such plants as Menziesia cœrulea, M. empetriformis, Bryanthus erectus, Andromeda tetragona, &c., as well as in that of many herbaceous plants which usually bloom between the middle and end of April, and which present a much gayer appearance than they do when late in flowering. With reference to the ordinary garden herbaceous plants, kinds which we usually trust so much to for class illustrations, very few of those sorts generally used during May could be had in flower. A long list of such plants might be given; a few, however, will suffice for future comparison, viz., *Doronicum Pardalianches*, *Geranium phœum*, *Aquilegia vulgaris*, *Potentilla ræpestris*, *Heracleum giganteum*, *Scabiera montana*, *Astrantia major*, *Papaver orientale*, also *Lupines*, *Thalictrums*, *Pœonias*, *Aconitums*, and *Delphiniums*. By May 31 we generally have flowers on the Horse Chestnuts, *Pavia flava*, *Laburnums*, *Lilacs*, *Common and Red Hawthorns*, *Bird Cherries*, and also on some varieties of *Sorbus*. This year we have only had the Double Cherry, Gean, Perfumed Cherry, Crab Apple, and Norway Maple in bloom. It will be remembered that Holly bushes last winter were nearly destitute of berries, and that various causes were assigned for the failure. This year blossom-buds may be seen in the greatest abundance, but few on May 31 were expanded. In my garden notes for May, 1875, I find it stated that Hollies of every description were covered with blossom so that the surface of the ground beneath them was white with the fallen flowers, and a good crop of berries was the result. During May last year flowers were also produced in abundance; the severe frosts (26°) which occurred during that month, and which was general all over the country, and at a time when the Holly blossom was in perfection, must have injured the pollen to such an extent that little or no fruit was produced. Although the frost during May of this year was more severe than last year, the Holly buds were not sufficiently advanced to be injured, and it will be well on in June before they can be fully developed, when it will afford a good opportunity to botanists to examine the flowers in different stages and in different situations, as well as in different varieties, and thus satisfy themselves as to the hermaphrodite or non-hermaphrodite state of these plants.

On the rock garden 212 species and varieties of plants were more or less in bloom on May 31. It will be needless to record a list of all. The following selection may be useful to those wishing to cultivate a set of plants for flowering at this particular time of the year:—

<i>Andromeda fastigiata</i>	<i>Ledum thymifolium</i>
<i>Andromeda tetragona</i>	<i>Lithospermum prostratum</i>
<i>Anemone alpica</i>	<i>Menziesia cœrulea</i>
<i>Anemone palmata</i>	<i>Menziesia Drummondii</i>
<i>Anemone Pepiana</i>	<i>Menziesia empetriformis</i>
<i>Aretostaphylos alpina</i>	<i>Polygala Chamæbuxus</i>
<i>Aretostaphylos californica</i>	<i>Phlox setacea violacea</i>
<i>Aubrietia Hendersonii</i> , and others	<i>Primula ciliata purpurata</i>
<i>Azalea procumbens</i>	<i>Primula cortusoides amœua</i>
<i>Bryanthus erectus</i>	<i>Primula integrifolia</i>
<i>Coptis trifoliata</i>	<i>Primula involucrata</i>
<i>Daphne Cneorum</i>	<i>Primula luteola</i>
<i>Dodecatheon integrifolium</i>	<i>Primula Pedemontana</i>
<i>Draba tridentata</i>	<i>Primula scotica</i>
<i>Dryas Drummondii</i>	<i>Pulsatilla vulgaris</i> var.
<i>Dryas octopetala</i>	<i>Ranunculus parnassifolius</i>
<i>Erica hypernica alba</i>	<i>Ranunculus unicolor</i>
<i>Erica hypernica stricta rubra</i>	<i>Rhodothamnus Chamæcistus</i>
<i>Erythronium americanum</i>	<i>Salix lanata</i>
<i>Gentiana verna</i>	<i>Salix reticulata</i>
<i>Helonias bullata</i>	<i>Saxifraga peltata</i> , and many others
<i>Helonias bullata alba</i>	<i>Trifolium unicolorum</i>
<i>Hutchinsia alpina</i>	<i>Trillium grandiflorum</i>
<i>Iris cristata</i>	<i>Viola pedata</i>
<i>Ledum buxifolium</i>	

Meconopsis nepalensis.—This is a stately Poppy from the Himalayas, allied to the well-known Welsh Poppy (*M. cambrica*), but with pale sulphur flowers of rather thin texture. The erect stems, 2 ft. to 3 ft., are many-flowered, and the blooming begins at the top, as is usual with these Himalayan species.—B.

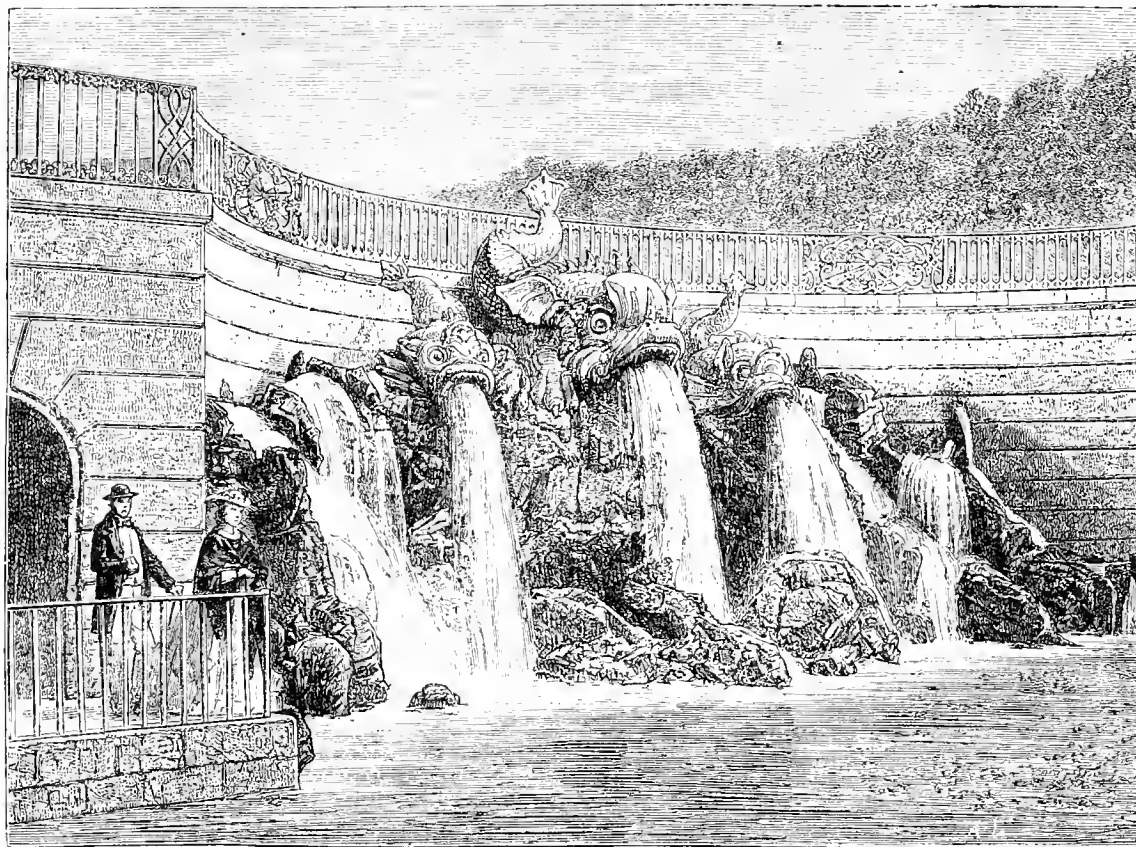
* Read before the Botanical Society of Edinburgh, June 14, 1877.

RENOVATING GRASS LAWNS.

It is astonishing how long a lawn will retain its verdure without assistance in the way of manure. No doubt a lawn gets impoverished in time by being continually cut; but still it seems to sustain little or no injury. The roots of Grass appear to be endowed with an extraordinary vitality, and the rains to which they are exposed recoup them for the close cropping to which they are subjected, and perhaps the fact of the Grass never being allowed to seed has also something to do with maintaining fertility. The vitality of Grass roots is best exhibited in dry seasons. In the dry summer of 1868 I knew large trees to die through drought at the root, and many to be seriously injured; but though the lawn was as brown and dead-looking as if it had been scorched by fire, the Grass was not killed. I thought it was in many places, for to all appearance the roots appeared shrivelled up, as well they might be, being close to the surface, and the Grass having been kept as closely shaven as a carpet

anything better than this for Grass, and its effects are more lasting than guano or soot alone, and it may be applied without fear of injury. Should the lawn be Mossy, it should be well harrowed with a rake first, and then cleaned and dressed. C.

A Piece of Old Time Gardening.—Under one of the cascades at Caserta there is a very large covered way with well-constructed rocky walls and walks, through which, Niagara-fashion, the visitor, who ought to be very much astonished, makes his way. In this covered way the Maiden-hair Fern is everywhere growing luxuriantly between the rocks and stones. From these shady places, however, it ventures out into crevices in the heads of the sea-monsters, thus protesting, as it were, against such a monstrous use of moustons.



“Gardening” at Caserta.

till the drought came; but when the rains came in October it began to grow, and by next summer all traces of the drought had disappeared. It must not be supposed, however, that I approve of lawns being allowed to become exhausted; by no means. A starved sward is never a very green one, and greenness and freshness are everything in a lawn; and upon the whole it is not difficult to keep it in that condition, for however neglected it may have been, it quickly responds to stimulating treatment. The best and most convenient plan is to apply artificial manure of some kind in the form of a top-dressing. Guano is good, but it does not produce the greenest verdure; soot surpasses it in that respect, and it is cheaper. It is not needful to top-dress the lawn annually, and when necessary most gardens should provide the materials. If all combustible rubbish in the way of prunings of trees, rakings of shrubberies, &c., be collected into a heap, they will serve not only to consume themselves, if set fire to, and produce a good quantity of wood ashes, but will reduce to ashes all the short Grass that has come off the lawn, weeds, roots, and other rubbish, and at the same time burn a considerable quantity of soil, which may with advantage be mixed with the ashes and the whole applied to the lawn as a top-dressing. There is hardly

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Henchera Menziesi.—This graceful little plant is blooming very beautifully here this season. It does remarkably well in a shady bog bed, and is well worth growing.—J. WHITTAKER, *Crewe Hall*.

Ferns and German Irises Intermixed.—Few plants are more suitable for small gardens than the blue-flowered German Iris; it thrives in almost any soil, and never fails in spring to produce abundance of large showy blossoms. Hardy British Ferns, too, will grow freely in similar situations, and in spring they throw up fresh green fronds just at the time that the Irises are in bloom. I lately saw Ferns and Irises growing together among large stones under a shady wall in a villa garden at Clapham, and the effect produced by the intermixture was excellent.—S. C.

Begonia Froebelli out-of-doors.—In addition to this Begonia being one of the best for planting out in beds, it forms an excellent plant when grown in a cool house and in good sandy soil. Even small bulbs of it throw up abundance of long flower-spikes, which commence to bloom as soon as they have attained 6 in. in height, and continue to grow and flower for many weeks at a time. If allowed plenty of light and air the blossoms when open are of the most brilliant scarlet, contrasting well with the stiff, deep green Cineraria-like leaves. Good plants of this Begonia recently flowered freely in Mr. Hudson's garden at Clapham, where they are grown in front of a cool Vinery.—S.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Vinerics.—There is nothing that the amateur so frequently fails in as late Vines; by such I mean those that are grown in houses that are without any means of applying fire-heat; or, if such exist, where it is not employed to accelerate growth in the spring, and the Vines are simply left to begin growing by the influence of sun-heat. It is with these that amateurs, especially new beginners, more often fail than with anything else they attempt to cultivate, not that the Vines refuse to grow if the soil in which their roots are placed be of fair quality and efficiently drained, and the foliage be kept in healthy condition and free from insects. The cause of non-success is through their not showing fruit, on account of the wood being insufficiently matured the previous season. In a season like the present, when even under glass everything that has not been brought on by the assistance of fire-heat is more than ordinarily late, the mishap of insufficiently ripened wood is more than usually likely to occur, especially with Vines that are strong and vigorous. Our summers are generally hot enough to supply the requirements of the Vine when grown under glass, but very frequently are not of sufficient duration, for in such late springs as the present, although the fruit may ripen before the foliage begins to go off in the autumn unless fire-heat has been applied to the Vines in the spring to forward the growth or will be employed in the later stages of their development, it is necessary to hasten the maturing process by unremitting attention in closing the lights sufficiently early in the afternoons whilst the sun is on the glass in order to secure a strong heat for some hours. No time can be fixed for closing, as the state of the weather and position of the house will naturally affect the condition of things; for instance, a lean-to house, with a south-eastern aspect, or where the sun's rays are at all obstructed by any other building, will need to be closed much earlier than a similar structure with a southern or south-western aspect fully exposed, but no harm need be feared by heat that will cause the thermometer to run up to 90° or even a little over, when at the same time there is sufficient moisture in the atmosphere, which can be effected by copiously watering the floors and walls at the time of closing. Vines that were started with heat in the spring early enough to have the bunches in a condition to thin a short time ago, should be examined again to see that the berries are not too much crowded, or more bunches left on than the Vines can bear without distressing them. The latest crops will now be ready for thinning, and should be attended to without delay. As I have before recommended, it is a much safer plan for the repression of that most injurious pest red spider, to syringe the Vines overhead, at all events, up to the time when the berries have stoned, and are commencing their second swelling.

Lawns, &c.—Mow lawns and verges sufficiently often to preserve a neat appearance, as when the Grass is allowed to get too long without cutting, instead of saving it entails more labour. During the summer months mowing machines should be set so as to leave the Grass half an inch longer than earlier in the season and late in the autumn; this is especially needful where the land is dry, and the roots of the Grass are liable to be burnt up. Cut away the tops of Crocuses and Tulips as soon as they have turned yellow, but not before.

Flower Garden.—Should the weather continue dry attend regularly to watering, so as to get the beds well furnished without delay. Where carpet-bedding is carried out, and the different varieties of Alternanthera are used, unless the soil has been made very rich (they will bear it to consist of one-third of rotten manure), they will be benefited by manure-water, made with horse-droppings or a little guano; for unless these plants are liberally supplied with manure in some shape, either solid or liquid, they do not grow nearly so strong, and fall as they ought, nor are they so well coloured.

Peaches and Nectarines.—Though these on open walls this year are in very few places carrying enough fruit to tax the powers of the trees to support it, yet nothing should be left undone to prepare them sufficiently for another year. In very light soils Peaches frequently do not succeed well, the trees often dying or getting into an unhealthy condition whilst comparatively young. There is no doubt that a moderately strong loam suits them the best; yet, if their requirements as to water be properly supplied, they can be kept for a long time in a healthy state in comparatively light ground, but without it this is impossible, as the Peach, more than any other fruit, cannot endure dryness at the roots. It is during the latter part of this and the next two months that in most summers they need an abundant supply of water. Where the borders slope considerably water always has a tendency to run off; but, if the surface be loosened with the hoe about 2 in. deep (not more, or it

will interfere with the roots), and on this (provided the ground is not cropped with anything else) are laid 2 in. or 3 in. of half-rotten littery manure well saturated with water, the trees will be benefited by the manurial elements thus washed down to their roots; and, should other crops be on the ground, the above mulching laid between the rows will stop evaporation, and help the soil to retain moisture much longer. Where the subsoil happens to be of an open nature, such as gravel or sand, it is difficult to keep Peach trees in a healthy condition without some such provision. If Peaches be allowed to suffer from drought during the middle of summer it not only inflicts permanent injury, but is often the cause of failure in the crop during the ensuing season, as when the growth is checked thus early, and there is an abundance of rain about the end of August, it starts the trees again into growth, after which there is not sufficient time for the formation of strong and plump fruit-buds. Continue to syringe the trees freely twice a week with clean water to keep down aphides and red spider, the former of which I have found very much more troublesome this year than usual. Continue to attend to the Peach borders under glass, so as to see that they are moist enough at the time the fruit begins to ripen, after which it will be necessary to keep the soil drier until after the fruit is gathered, for if too wet during the latter stage of maturation the flavour will be materially affected.

Strawberries.—In treating upon Strawberry culture, it is generally assumed that they are planted in strong, heavy land, as that is the best adapted to this fruit; but the soil of many gardens is of a light sandy nature, not calculated for the best raising of Strawberries without especial attention, and which (even in a season like the present, when the superabundant rains through the autumn and winter have rendered the land sufficiently moist for the requirements of vegetation) will need a plentiful supply of water; as now, whilst the fruit is swelling, the energies of the plants are taxed to the utmost, and if deficient in moisture at the roots, the produce of the crop will not be satisfactory. It should ever be remembered that in applying water, especially to a crop like this, one good soaking is much more effectual than several insufficient applications.

Kitchen Garden.—Advancing crops of Carrots should be again looked over to see that they are not left too thick, especially the main sowing. Turnips also will require attention in this respect; there are few crops suffer so much as this if allowed to stand too close together, as when in this state they run to leaf, forming bulbs that are not only small but very poor in quality. Put in more seed, the early sowings in the majority of places having been unsuccessful. Beet.—Thin the main crop before the plants get so large as to interfere with the growth, as, without we have a more than usually protracted summer, there is much less time than usual for them to grow to a useful size. Coleworts.—Some seed should now be sown; these will be useful for planting thickly late in the season after other crops are cleared off. In respect to this vegetable it is necessary that amateurs should make sure that they get the seed true and not some small kind of Cabbage which is sometimes substituted for it, as the Colewort will turn in its leaves and make useful heads when planted later than any variety of Cabbage; it also may be planted under fruit trees when these are not grown too close. Of course they will not produce anything like the crop they will in an open situation; nevertheless, what they do yield is so much gain, and they help to keep down weeds. Beans.—Where Dwarf French Beans are held in particular estimation a few more may at once be sown; these should occupy a south border, under the shelter of a wall, where, by a slight additional protection from September frosts they will frequently go on bearing longer than those grown in more open situations. Cabbage.—Planted Cabbages that have been cut and the stools left to produce a crop of Sprouts, should, where the land is at all poor or of a light nature, have a good soaking with manure-water, by which, in addition to thinning out the shoots to some two or three to each stool, they will make small, useful heads, that will come in through the autumn. Keep the hoe going on all favourable occasions amongst advancing crops of every kind.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

June 25.—Potting Anne Boleyn Pinks. Putting Cockscombs into their flowering pots. Planting out some old Pink plants that have been forced; also Stocks, Asters, Perillas, Veitch's Autumn Giant Cauliflower, Snow's Broccoli, Savoys, and Scotch Kale. Potting Lycopods in boxes for the conservatory. Leaving abundance of

air on Peach-house in which the fruit is ripening. Layering Straw-berry runners in small pots, and earthing up French Beans.

June 26.—Potting off young seedling Carnations. Shifting large Colens into larger pots. Sowing Maclean's Wonderful Pea, Round Spinach, and White Dutch and Golden Ball Turnips; also French Beans and Lettuce. Digging land in which to plant another crop of French Beans. Removing laterals from Vine shoots, and regulating the shoots of Peach trees in houses; also nailing Apricot, Plum, and Peach trees out-of-doors. Emptying a pit for Cucumbers, and placing large standard Heliotropes in conservatory.

June 27.—Basketing *Oncidium cheiroporum*, using peat and crocks, and potting *Masdevallia Veithei* and *coccinea* into 6-in. pots. Planting out newly-struck Pink and Carnation cuttings. Wheeling in manure for Celery trenches. Keeping floors of Vineries where fruit is swelling frequently watered. Digging all vacant ground and hoeing between growing crops. Tying in all leading shoots in Peach-house, and also those of espalier Pear and Apple trees out-of-doors.

June 28.—Shifting *Achimenes* into their flowering-pots; also dwarf *Chrysanthemums*. Netting Strawberries, and layering runners of plants from which the fruit has been gathered. Digging ground lately occupied by Lettuce for French Beans, adding plenty of well-rotted manure. Thinning Turnips. Syringing Ferns for thrips and green fly. Throwing out and manuring more trenches in which to plant *Canlidowers*.

June 29.—Sowing dwarf China and Negro Long-pod French Beans; also various kinds of Endive. Planting Broccoli amongst Potatoes. Plunging Roses that do not require repotting. Thinning Salsafy, Scorzonera, and Turnips. Putting old forced bulbs that have been well dried in flower-pots and storing them away. Leaving a little air on Vinery all night where Grapes are changing colour. Thinning out the shoots of Tomatoes, regulating the remaining ones, and nailing them to the wall.

June 30.—Putting large standard Heliotropes into their flowering pots. Shifting scented Verbenas into 8-in. pots to grow on for cutting purposes. Potting Arum Lilies, Gesneras, and *Justicias*. Staking out *Cattleya Mossiæ* and *C. speciosissima*, and putting them into smaller pots. Sowing Nonpareil Peas and main crop of Endive. Thinning Carrots. Watering Vines and Peach-house. Pegging down Verbenas and *Petunias* in flower garden. Gathering Sir J. Paxton Beans from under hand-lights.

Hardy Flowers.

AUBRIETIAS.—Some find these difficult to propagate; my practice is to pull off all the straggling side-shoots now from the old plants, securing as much stem as possible, and breaking it off close to the main root; then a piece of ground is dug in a cool, shady border, into which is worked plenty of rough sand and leaf-mould; the shoots are then planted in lines, a little sandy soil being placed about the portion put into the ground, and all is trodden down firmly. The cuttings are then occasionally sprinkled and kept shaded from the sun, and, thus managed, but few failures occur. One great advantage in getting the cuttings started now is that the plants become strong and dense by the end of the summer, and are well fitted for planting out. The best of the *Aubrietias* are *Campbelli*, *Eyresi*, *græca*, and the pretty variegated form of *deltoidea*; this requires careful treatment in the way of striking cuttings, which do best in pans of a light, sandy soil, kept moist and cool.

DIANTHUSES.—Among these there is the charming *D. alpinus*, dwarf in growth, and bearing large, deep rose-coloured flowers. I find it does best in pots in a gritty, sandy soil, and kept in a cool, shady place. *D. barbatus*, or the common Sweet William, is now blooming freely, and some of the improved forms are very beautiful. Sweet Williams generally are not sufficiently well cultivated, and the consequence is they fail to bloom so finely as they would do under better attention: I have seen some with flowers of great size and very handsomely marked. *D. superbus*, the flowers of which are deep pink and handsomely fringed, is a very valuable decorative plant, but sharing, to some extent, the prejudice which attaches to fringed flowers. It is now blooming with me in pots, and I am looking forward with some interest for the blooming of some seedlings. The showy annual *Dianthus*s, such as *D. Heddewegi* in particular, are beautiful both in borders and in a cut state. The latest selection is termed *D. diadematus*, the flowers of which are more or less handsomely marbled.

FOXGLOVES.—These look well as a background to mixed borders, associated with Larkspurs, Dahlias, Hollyhocks, and other tall-growing plants. I was looking over a bed of the improved varieties a few days ago, and very beautiful many of them are. Instead of only the ordinary purple and white kinds there can now be found

flowers with rose, lilac, pink, and blush exteriors, the blossoms large and of fine form, and the throat or lip very handsomely spotted. It is in this rich, bold spotting that the beauty of the Foxglove so much consists. The small brown spots, characteristic of our wild Foxgloves, have been converted into large, rich, dark blotches and spottings, and when these markings are in combination with pure white tubes, the effect is strikingly beautiful. Foxgloves are now getting into full bloom, and in the case of extra strong plants there is first the massive centre or main spike, and then a number of side growths come forth later. Those who do not require to save seed should cut out the centre spike as soon as it gets shabby, and the side-shoots will be considerably benefited thereby, especially if a good supply of water be given at the roots in dry weather. In the case of the best varieties a side-shoot will supply an abundance of seed. If the seed be sown early in spring the plants will become strong for planting out in autumn, and will flower the following June. A good yellow Foxglove would be acceptable; but seedlings from *D. grandiflora* or *D. lutea* do not show any material improvement on the parental type.

GLADIOLI.—Gladioli, whether in masses or grown singly, require attention during hot, dry weather. In the case of a bed of fine seedlings the surface has just been gently stirred, and a mulching of 2 in. of good manure laid over it. The bed is well syringed every evening, and the falling water carries down to the roots much of the invigorating properties of the manure. Some of the shoots are coming up remarkably strong, and they are already being secured to stakes to prevent them from being broken off by the wind. The following early-flowering species richly deserve a place in the mixed border, viz., *communis*, the flowers of which vary somewhat, being occasionally white, blush, or pinkish-rose; *G. cardinalis*, red; and *G. ramosus*, rose, of which there are some very beautifully-coloured varieties.

LATHYRUS.—Under this head we have the Everlasting Peas, among which *L. grandiflorus* is used largely for training on cottage walls, and it is already in full bloom in sheltered spots. It makes an excellent summer fence if planted against iron railings or anything of the kind that will afford it support; the flowers, which are of large size and handsome, are produced with great freedom; once planted, it will continue to grow up in spring and bloom in early summer for years. *L. latifolius*, the common Everlasting Pea, is so well known as scarcely to need mention, but it is, nevertheless, invaluable in gardens. *L. Drummondii*, the scarlet or carmine Sweet Pea, is much scarcer; it is extremely pretty, but requires to be somewhat in the shade, as the sun scorches its gay flowers and spoils their effect; like the others, it is propagated by seed and root division.

MIMULUSES.—*Mimuluses* in pots should now be in a cool north house, as hot weather, when the plants are fully exposed to the sun, is very trying to them. By keeping them cool and shaded, their beauty can be prolonged for a considerable time. Some seed sown now would yield plants that would bloom in August and September. Harrison's New Musk deserves a word of praise. The habit of growth and character of the common Musk are maintained, but the flowers are spotted, large, and handsome. Musk is greatly helped by being potted from 2 in. to 3 in. deeper than usual, and then gradually filling up the pots with rich soil as the plants make growth; in this way fine examples of Musk can be had. I am treating the new kind in a similar manner, and with good results. D.

Metropolitan Water Supply.—Dr. Frankland reports, as the result of his analysis of the waters supplied to the metropolis and some of its suburbs during April, that taking unity to represent the average amount of organic impurity in a given volume of the Kent Company's water during the last nine years, the proportional amount of this impurity in an equal volume of water supplied by each of the other companies, and by the Tottenham Local Board, was:—Tottenham, 0.5; Colne Valley, 0.9; Kent, 1.0; New River, 3.1; East London, 3.6; Lambeth, 4.7; West Middlesex, 5.3; Grand Junction, 5.7; Chelsea, 6.1; and Southwark, 7.8. All the water delivered from the Thames, except that supplied by the Middlesex Company was more or less turbid, and was unfit for dietic purposes, being much polluted with organic matter. The Southwark Company's water was "very turbid," repulsive in appearance, and contained "fungoid growths and moving organisms;" this company's filter-beds have been undergoing repair since the summer of 1876. The Grand Junction water also contained moving organisms. The water supplied principally from the Lea by the New River and East London Companies was very superior to the Thames waters, and was efficiently filtered. The deep well waters supplied by the Kent and Colne Valley Companies and by the Tottenham Local Board were of their usual excellent quality. The Colne Valley water is softened previous to delivery, and showed less than 5° of hardness, whereas in the Kent and Tottenham waters there were 25° and 27° of hardness respectively.



Downy Lupine (*Lupinus pubescens*).



Pyramidal Bugle (*Ajuga pyramidalis*).



Cobweb Houseleek (*Sempervivum arachnoideum*).



Thick-leaved Stonecrop (*Sedum dasyphyllum*).



Gladwin (*Iris foetidissima*).



The Sea Lily (*Pancratium maritimum*).



English Lady's Slipper (*Cypripedium Calceolus*).



Tom Thumb Tropaeolum (*T. majus*, var.).



Viscaria oculata.



Pheasant's Eye (*Adonis vernalis*, var.).



Broad-petaled Crane's Bill (*Geranium platypetalum*).



Hartweg's Lupine (*Lupinus Hartwegi*).

SOME HARDY FLOWERS OF THE WEEK IN LONDON GARDENS.

HARDY FLOWERS IN LONDON GARDENS.

LILiums, tall blue-flowered Larkspurs, white and yellow Alliums, and the double scarlet-flowered Geums, now rank amongst the most showy of hardy flowers. German, Spanish, and English Irises make, as a matter of course, a fine display. The blue *Anchusa italica*, in the form of large bushes, is just now very bright, and makes a good wild garden plant. *Onosma taurica* is laden with blossom, as is also *Muscari comosum grandiflorum*. Peruvian Squills, both blue and white, are still in good condition at Tottenham, where also may be found *Campanula Wanneri*, growing on



Fraxinella (*Dictamnus Fraxinella*).

rockwork, and bearing a profusion of handsome dark blue, bell-shaped drooping blossoms. The blue *Campanula alpina*, too, is just at its best, and forms an effective contrast with the brilliantly-flowered *Delphinium nudicaule*. Large bushes of the rosy-tinted white *Cistus albilorus* are also very showy, growing on mounds and other raised positions. *Æthionema grandiflora* now forms one of the most attractive of border-plants, and a pretty dwarf-growing *Spiræa* is flowering for the first time in the Tottenham Nurseries. Columbines of all colours are still in full bloom, and the bluish-purple flowers of the Alpine *Pentstemon glaber* is in

THE KITCHEN GARDEN.

THE SQUASH AND ITS CULTURE.

THE SQUASH is a tender annual of tropical origin, and it needs to be treated as such. Although a tropical plant it has the capacity of adaptation to a wide extent throughout the temperate zones, where its natural requirements are complied with. The reason why failure is so often met with in its culture is the neglect to recognize the origin and natural requirements of the plant. Apart from its tenderness, the seeds are liable to rot in the ground in continued damp and cold weather; therefore the planting should be delayed in spring until the ground gets properly dry and warm and the weather settled. Almost any soil is suited for the Squash, although for a good crop of fine-grained, well-flavoured fruit I prefer a sandy loam not too rich, but in fair heart. Plough and work the soil, as its nature may require; if a thin one, work it from 3 in. to 5 in. deep, a deeper one may be worked deeper, provided the soil be well drained. Make the surface even and soil fine by harrowing; then lay off the rows and hills as the variety may require. Make the excavations for the hills wide and deep, to hold two or more shovelfuls of manure, which should be well rotted. Cover it so as to be fully even with the surrounding surface; on this drop, scattering within a circle of 1 ft. in diameter, six to eight seeds, covering them with one-half to three-fourths of an inch of fine soil, and compressing with the back of the hoe. When the plants are well up, and have made their first rough leaves, thin out the weaker ones till finally there shall remain to grow only three, or at most four, the strongest and best. Cultivate sufficient to uproot weeds and keep the soil loose and mellow. When the plants run and begin to take root at the joints, be careful not to disturb them, as nourishment is taken up through these roots. Some pinch off the ends of the vines after they have made a growth of a few feet and blooming has commenced, with the impression that it promotes fruitfulness and early maturity, but in my own experience I have failed to find any material advantage in this.

In varieties we have summer, autumn, and winter, thus filling the seasons and year around. It is a very difficult thing to grow two or more varieties, which blossom at the same time, in the same field or its vicinity, without their becoming mixed, so that Squashes grown from their seed will partake of the character of each, or be very different from either. Sometimes this is the case when they are planted at a considerable distance apart, through the agency of insects carrying the pollen from one to the other. From this it will be seen that the growing and retaining of pure seed is a somewhat delicate business, and seeds are not to be depended upon where various sorts are grown in near proximity, or in the same field. If one wish to grow his own seed, he should plant only one variety, and at a considerable distance from any other of the same class of plants: and from the produce select the very best and most perfect specimens, and from these save seeds sufficient to plant for several seasons, as they will retain their vitality, when properly cared for, eight or ten years. By pursuing this course with different sorts, as many seasons as you may wish different varieties, just so many sorts of reliable seed may be obtained; or all may be grown the same season by planting each variety entirely alone and at considerable distance from any other of the same tribe. New varieties are easily produced—much easier than retained; but the production of a superior sort, combining all the desirable points, is a work of exceeding delicacy and patience. Sorts are selected possessing as many good points as possible, and these are cross-fertilized; these seeds are then separately tested, and when one is found possessing most desirable qualities, this is tested in different soils and localities till established as a distinct and desirable variety. Sometimes a "sport" will afford a desirable variety, and may be easily established by careful culture; but few cultivators have the time or patience necessary to the production and establishing of new varieties, and this is left to professional or amateur cultivators. Seeds of the Squash are saved from specimen fruits, washed clean, and then dried. On an extended scale the seeds and surrounding portions are scraped out together (after cutting the



Woolly Foxglove (*Digitalis lanata*).

Lebanon Candytuft (*Æthionema cordifolia*).

excellent condition, growing in warm, rich soil. The largest of all the Iberises (*I. gibraltaria*) is just now a mass of snowy whiteness. The Flame-flower (*Tritoma Uvaria*) is beginning to throw up its stalwart flower-stems, a circumstance doubtless attributable to the sudden advent of the bright, warm weather which we are now experiencing. *Oxalis lupinoides* is a mass of deep rosy blossoms, and the brilliant scarlet Sage-like flowers of *Anigossanthus splendens* are very attractive. *Gladiolus Histrion flore abla* is flowering freely, as are also plants of *Brodiaea congesta*, various *Ornithogalums* (especially *O. arabicum*), and *Polygonum undulatum*.

thoroughly ripened fruit in two) into a tub or cask; a quantity of water is added, and then allowed to stand and ferment, when the seeds will settle at the bottom. The fluid is then poured off, and the seeds washed by adding water, stirring and pouring off till the seeds look clear. They are then drained through a suitable strainer, and spread on sheets or cotton prepared for the purpose, and exposed to the air, being stirred daily till sufficiently dry, finishing off by spreading them 2 in. deep on a floor in some airy building. When perfectly cured they can be put in barrels or boxes, but will need changing two or three times a week from one receptacle to another, till settled cold and dry weather has set in. Seeds should be stored in dry, even-tempered rooms, where there is no chance of their absorbing dampness; dry wood or paper is suitable for packages. Sometimes seeds are injured by admitting steam, or even the air arising from some sweating material, into their compartment. Seeds are seldom or never injured by any atmospheric heat or cold, provided it be unaccompanied by moisture, and will keep stored thus their maximum time.

For summer varieties I can recommend only Summer Crookneck and Bush-scalloped; the first a limited runner, the other of dwarf, erect habit. The Crookneck is the better Squash in all respects for the table. The fruit of these summer Squashes is too well known to need description. Both are used while young and tender, as when old the skin becomes hard and shell-like. They also become watery, coarse, and unpalatable. The Crookneck may be planted in hills 6 ft. apart, and the Bush-scalloped 4 ft. each way, in large hills, with a heaping half bushel of manure to each hill, in garden culture. Among the autumn and winter varieties, the Autumnal Marrow is a good one; the plant is moderately vigorous, growing from 10 ft. to 12 ft. in length; fruit not large, ovoid, pointed at the ends; stem fleshy and large, somewhat contracted where it joins the fruit; skin thin, easily bruised; cream yellow at maturity, changing to red later; flesh, rich, salmon-yellow, quite dry, fine-grained, and remarkably sweet. In favourable situations it will be sufficiently grown for use in August, and will, under favourable circumstances, keep till March. The American Turban appears to be a sort of sub-variety of the original Turban, and in some respects is an improvement thereon. Compared with the original, the plant is somewhat hardier, and a more abundant bearer, a better keeper, and quite as rich and delicate. The Hubbard is vigorous; fruit irregularly oval, from 8 in. to 10 in. long, and from 7 in. to 8 in. in diameter, fair specimens weighing from 7 lb. to 9 lb.; outer shell hard and thick, covered with small protuberances; colour variable, clay-blue or deep olive-green; long exposure to sun causes the exposed side to assume a brownish cast; flesh rich salmon-yellow, and thick, fine-grained, sweet, dry, and of the best flavour. When baked it is equal to the very choicest Carolina Sweet Potatoes; it is sweetest and driest in autumn or beginning of winter, but will keep till June. It is more essential, if possible, that this variety be planted as far as possible away from any of its kind, as it mixes or hybridizes so readily. This Squash, I consider, has no superior in excellence for cooking purposes. The Yokohama runs to the length of 12 ft. or more; fruit roundish, much flattened at the ends, strongly ribbed; size from 8 in. to 10 in. in largest diameter; skin warted, yellow or dull orange at maturity; flesh orange-yellow, fine-grained, dry, and sweet. Will keep till March. The Canada Crookneck is somewhat similar in habit to the common Crookneck, but has smaller foliage, and less luxuriant in growth; size small, seldom exceeding 6 lb. in weight; skin moderately thin, easily pierced by the nail; colour, when mature, cream-yellow; age causes it to assume a deeper or darker colour; flesh salmon-red, very close-grained, dry, sweet, and fine-flavoured; best of the Crooknecks; plant very hardy.

Having said thus much concerning culture and varieties, it might be expected that I should say something concerning insects. Would that I could give new light, and speak with assurance concerning these insect enemies and their specific antidotes. But insect life is a problem not solved in a day. The striped bug and the black flea beetle are the most common, both working on the leaves of the plants and often destroying them. Various repellants have been suggested and tried to prevent their ravages; among which are ground plaster, air-

slacked lime in fine powder, soot, or charcoal dust sprinkled on and around the young plants; but the most effective preventive is to cover the plants with gauze stretched on a frame and placed over each hill. This is only practicable where only a few hills are grown, as in garden culture. In field culture we must rely upon numerous plants, and sprinkling with some of these repellants. Another enemy which destroys the young plants is the common cut worm, for which an effectual remedy is wanting. Stirring the soil and killing by hand is the surest, and exposing them for birds to pick up.

Squashes are gathered before frosts cut the foliage down, as they are very sensitive even to light frosts, which injure their keeping qualities. The fruits should be cut from the vines, retaining the stem entire, and be very carefully handled, not to bruise or otherwise injure them. When storing them, they should not be piled one on top of another, but should rather be laid singly. To keep them through the winter, they should be stored in a rather dry, even temperature, above the freezing point. A dry, well-ventilated cellar keeps them well, or a room aboveground, where frost does not enter, makes a capital storing place. Lay them singly, so that they do not touch each other (or any substance likely to mould), on dry boards covered with straw. Before being stored for the winter, they should be stored for a week or more in a barn, so that they may evaporate superfluous moisture, and then be placed in their straw beds, that will tend to absorb any farther evaporation. If the straw get damp and likely to mould, it should be changed for dry. We once knew a cultivator living in an old-fashioned house, containing an old-fashioned kitchen, with its huge fire-place and back-log, who used to keep the old Crookneck Squash in his kitchen, hanging on a peg fixed to a beam or joist overhead. He would frequently keep them sound till the summer following. I suppose any variety of Squash will keep its season when its requirements are similarly complied with. The essential requisites in keeping Squashes are to have them well matured without being chilled by frost, perfect specimens, and moisture evaporated before being put away, and then stored in a safe, even temperature, where they will neither mould nor absorb moisture.—“Cultivator and Country Gentleman.”

RHODODENDRONS AT KNAP HILL.

THESE are now in greater beauty than we ever remember to have seen them. Here may be found the original plant of Mrs. John Clutton, still the best white in cultivation, 15 ft. in height, and nearly as much in diameter, thickly studded with lovely trusses of bloom. Long rows of standard trees of albin elegans are also loaded with flowers, and the remarkably showy and distinct crimson-flowered kind, called Alarm, has perhaps never been seen in better condition than it is this year. The rosy-scarlet Brayanum still stands at the head of its class, and is equally attractive in a large or small state. H. H. Hunnewell appears to be one of the best of the crimson-flowered type, its well-formed trusses being shown off to advantage by the large, dark green foliage amid which they are set. Looking at what one sees at Knap Hill, improvements on existing kinds would seem to be impossible; this, however, is not the case, for seedlings—better than their parents—are continually turning up, and the work of hybridization, with the view of obtaining something new, is constantly going on. The chief aim is to produce good kinds that will flower late in spring, when all fear of danger from frost is over, for useful as early-blooming kinds are, their beauty is often greatly impaired by spring frosts. Amongst seedlings now to be found in Mr. Waterer's collection, one named Marchioness of Lansdowne is a charming addition to existing kinds; it bears compact, conical trusses of flowers, which at first sight remind one of these of the beautiful *Odentoglossum vexillarium*, except that they have faint, golden spots in the upper petals, and stout brownish-tipped anthers. Another very distinct seedling, as yet unnamed, bears flowers of a rosy-crimson colour, edged with white, the upper petals being conspicuously dotted with maroon. Others, of an equally attractive character, may also be found in large numbers. When we state that 150 acres of land are occupied by Rhododendrons, of all forms and varieties, some idea may be formed of the display which they now make at Knap Hill. They are also associated with masses of hardy Azaleas, which are most effective this year, having happily escaped the evil effects of frost. Amongst them are kinds bearing flowers of all shades, from pale yellow to the deepest orange-scarlet. We also noticed many seedling Azaleas, the flowers of

which are, as regards size, equal to those of the more recently introduced *A. mollis*. Amongst these seedlings, too, may be found kinds bearing deliciously-scented flowers, and of rich colours, and they have the merit of being perfectly hardy, and of blooming late in the season, when all danger from frost is over; moreover, unlike the older varieties, they flower when the plants are well clothed with leafage, a valuable recommendation. For those who are unable to visit Knap Hill and see the fields of American plants now in bloom there, a grand exhibition of them is provided by Mr. Waterer in Regent's Park, where a selection will be found of all the most attractive kinds. They are tastefully arranged on sloping banks, and covered by a large tent, but, owing to the faulty construction of the latter, the effect of the exhibition, as a whole, is greatly impaired.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY'S SHOW.

JUNE 19.

THIS, the largest show of the season, was in every way a satisfactory one, and the exhibits, which were numerous, were of an unusually attractive character. They occupied three spacious tents, which, together with the gardens (now greatly improved in appearance), were thronged during the afternoon with visitors. The Prince and Princess of Wales honoured the exhibition with their presence, and Her Royal Highness distributed the medals in the evening to the successful exhibitors. Mr. John Wills furnished the large circular tank in the centre of the walk approaching the exhibition tents from the Council-room with large square blocks of ice overcanopied by Palms and other graceful-foliaged plants issuing from a bed of Club Mosses and white Water Lilies.

First-class Certificates.—These were awarded to the following new and rare plants:—

Anthurium Veitchi (Veitch).—A noble-looking plant with large, glossy green and bronze, deeply-veined leaves upwards of 3 ft. in length. In every collection of fine-foliaged plants this should have a foremost place.

Anthurium Warocqueanum (Veitch).—A smooth, pointed-leaved kind, with white, conspicuous veins.

Pink, Tom Thumb Scarlet (Veitch).—A dwarf-habited variety bearing a profusion of intense scarlet semi-double blossoms: well adapted either for pot or border culture.

Pelargonium, Dr. Masters (Williams).—A free-habited variety with semi-double, maroon-scarlet blossoms, to which allusion has been made on previous occasions.

Thrinax gracillima (Williams).—A graceful-leaved Palm resembling a Cyperus, and admirably adapted for dinner-table or room decoration.

Croton, Prince of Wales (Williams).—A long, twisted, yellow and green-leaved kind with a compact but remarkably graceful habit.

Lilium elegans Alice Wilson (G. F. Wilson).—A distinct orange-yellow-flowered variety of the dahuricum type, likely to shortly find its way into all large collections.

Stove and Greenhouse Plants.—These, which were well represented, consisted chiefly of large miscellaneous groups. That shown by Messrs. Veitch & Sons was as remarkable for novelty as for skilful culture. It consisted of choice Orchids, amongst which was a fine mass of brilliantly-flowered *Masdevallias*, *Odontoglossum Alexandra*, *O. Roezli*, and a plant of the beautiful *O. navium*, bearing over thirty magnificent spikes of beautifully-spotted blossoms; a mass of *Begonia Acme* lighted up one side of this group, and red-leaved *Dracenas* gave colour to the other, and contrasted strikingly with the green-leaved Palms and gracefully-hanging Ferns which also graced this collection. The same firm also showed a large panful of the white and yellow-blossomed *Utricularia montana* in excellent flower; groups of insectivorous plants, placed on wooden stands and covered with bell-glasses; Pitcher-plants, always interesting on account of their singular forms; the graceful *Paulinia thabctrifolia*, seedling *Ixoras*, and *Todeas*, all of which, and many more, rendered this one of the most effective and deservedly appreciated groups of plants in the whole exhibition. Mr. William Bull contributed a collection of new and rare plants of a meritorious character; amongst them we noted a well-flowered example of the trailing *Bomarea Carderi*, finely-coloured plants of the curiously spotted-leaved *Dracena Goldieana* (represented in our last week's number), *Sadleria cyatheoides* (one of the most graceful of Ferns), numerous new *Crotoms*, neat baskets of *Odontoglossum vexillarium* edged with *Adiantum gracillimum*, and several new *Pelargoniums*. Mr. B. S. Williams showed an admirably arranged group of miscellaneous plants, amongst which were remarkably well-flowered specimens of *Odontoglossum vexillarium*, *Cypripedium niveum*, and a specimen of *C. barbatum superbum* bearing nearly fifty well-formed blossoms. The same collection also contained grand plants of *Dipladenia amœna* and *Allamanda grandiflora*, well-flowered *Azaleas* and *Statice* intermixed with Palms, Ferns, and fine-leaved *Crotoms*. Messrs. Osborn furnished, amongst other clean and healthy plants, good examples of *Pandanus Veitchi*, large specimens of the variegated New Zealand Flax in flower, well-grown Palms, and

Dracenas, set off to advantage through being associated with the brightly-coloured spathes of the Flamingo-plant (*Anthurium Scherzerianum*), the whole being edged with the graceful *Aralia Veitchi*, *Croton Weismanni*, and *Adiantum Farleyense*. Messrs. Jackson & Sons had a fine collection of plants, consisting of *Everlastings*, *Clerodendrons*, *Statice*, and a fine *Stag's-horn Fern*. These were backed up with large Tree Ferns, Palms, and *Dracenas*, and edged with small coloured-leaved *Dracenas*, *Crotoms*, and the pyramidal *Saxifrage* (*Saxifraga nepalensis*). Messrs. Charles Lee & Son, Hammersmith, had also a group of miscellaneous plants, amongst which were good examples of *Cordylina indivisa*, Australian Bird's-nest Ferns, *Cureuilgo recurvata variegata*, and a fine specimen of *Medinilla magnifica*, the latter bearing upwards of seventy pendent clusters of rosy-coloured blossoms. Messrs. John Standish & Co., Royal Nurseries, Ascot, contributed a group of *Carnations*, *Aralias*, *Dracenas*, and cut-leaved Japanese Maples; also plants of *Todea superba*, *Lomaria magellanica*, *Adiantum gracillimum*, and other Ferns. Messrs. Laing & Co. showed miscellaneous plants, consisting of Ferns, *Dracenas*, flowering *Crinum*s, *Caladium*s, and other well-grown plants. Messrs. Cutbush & Sons contributed stove and Greenhouse plants, all well-grown, and flowered Palms and Cycads. A capitially grown group of plants came from Mr. Thornber, gardener to Thomas Moss Shuttleworth, Esq., conspicuous amongst them were some very healthy specimens of *Cordylina indivisa*, and the crimson and green-spotted bronze-leaved *Croton undulatum*, and a remarkably fine specimen of *Cycas revoluta*. Messrs. Carter & Co. contributed a good collection of ornamental-foliaged plants, amongst which were good examples of the graceful *Cocos Weddelliana*, *Croton majesticum*, *Coleuses* of different kinds, and other plants, the whole being edged with well-flowered plants of *Ionopodium acule* in 6-in. pots, their lilac, starlike flowers being very effective. Mr. John Wills furnished a bank of fine-leaved plants, amongst which were Palms and Tree Ferns, while on a mound of Club Mosses were placed choice small-leaved *Caladium*s, cut flowers of Water Lilies, *Everlastings*, variegated Pines, and Pitcher-plants, the latter being placed on elevated pedestals. Mr. Wills also exhibited on this occasion his collection of choice seedling *Dracenas*, amongst which Mrs. Bausé was especially worthy of notice. Mr. John Hepper showed a rustic vase filled tastefully with *Crotoms*, *Cissus discolor*, variegated Pines, Ferns, and Grasses. Messrs. Hooper & Co., in addition to a collection of Ferns and Palms, furnished a miscellaneous group of plants, amongst which we noted many fine varieties of *Begonias*, especially the hardy *B. Froebeli*, in good condition. Messrs. J. & R. Thyne, Great Western Nurseries, Glasgow, had fine examples of *Croton Disraeli*, *Medinilla amabilis*, and a neat little plant of the brightly spotted-leaved *Bertolonia superbissima* under a hand-glass. Orchids were, for the most part, grouped with other plants. A good collection of them, however, was furnished by Mr. Heims, gardener to F. A. Philbrick, Esq., St. John's Wood; amongst these we noted well-flowered plants of *Epidendrum vitellinum* and *Oncidium macranthum*. Mr. W. Perry, Bristol, had also amongst others good plants of *Dendrobium thyrsoïdum*, *Odontoglossum Pescatorei*, and *Lœlia purpurata*.

Mr. Bull's Silver Cups, offered for 12 plants introduced by him since the commencement of 1874, were competed for by four exhibitors. The best groups came from Mr. B. S. Williams, and Mr. Wills, the former having excellent examples of *Dipladenia Brearleyana*, *Cycas media*, *Croton splendendum*, *C. majesticum*, and the useful *Aralia elegantissima*. Mr. Wills had a well-grown plant of the copper-coloured *Alocarpus Cannoni*, good specimens of *Lomaria Dalgairnsia*, and a fine plant of *Encephalartos Hildebrandi*. In the amateurs' class the best group came from Mr. H. Thornber, gardener to T. M. Shuttleworth, Esq., Preston, who had good examples of *Ixora regina*, *Sadleria cyatheoides*, and the best coloured specimen of the showy *Croton majesticum* which we have yet seen. Mr. C. Rann, gardener to J. Warren, Esq., Crawley, Sussex, had a pretty little plant of *Croton chrysophyllum*, the curly-leaved *C. spirale*, and a good specimen of the spiny *Martinezia granatensis*.

Market Plants.—The best collection of these came from Mr. Reeves, Acton; it was neatly arranged, and consisted, amongst other things, of finely-bloomed plants of *Lilium auratum*, blue and pink *Hydrangeas*, well-grown Palms, Ferns, *Mignonette*, and *Crotoms*. Messrs. Pounce & Sons, Westbourne Grove, had a very effective group, the back rows in which consisted of narrow green-leaved *Dracenas* and Mrs. Marshal Fuchsias placed alternately, in front of these was a row of *Everlastings* (*Rhodanthe Manglesii*), *Pelargoniums*, and *Heliotropes*, and a wide bank of *Agrostis pulchella* formed groundwork for a coloured motto. Mr. Herbst, Richmond, showed a group of Palms. Mr. E. Sawyer, Hyde Nursery, Edmonton, contributed *Hydrangeas*, *Calceolarias*, and *Pelargoniums*, edged with blue *Lobelia* and scarlet *Tropæolum*.

Cut Flowers, Bouquets, and Dinner-table Decorations.—These were all fairly well represented, the most attractive being the *Roses* shown by Mr. Charles Turner, who furnished twelve stands of blooms, amongst which we noted fine examples of *Miss Hassard*, *Devoniansis*, *Madame Charles Wood*, and the brilliant crimson-flowered *Lord Raglan*. From Mr. Hollingsworth, Turkey Court, Maidstone, also came several stands of *Roses*, amongst which were good blooms of *Niphetos*, *Prince Camille de Rohan*, and *Triomphe du Luxembourg*. Messrs. Barr & Sugden staged an extensive group of *Irises*, which embraced all the known varieties worthy of cultivation, not only of the German section, but also both Spanish and English *Irises*, including *I. Susiana*, *neglecta*, *Fairy Queen*, and a beautiful kind named *Porcelain Sceptre*. Mr. Parker, Tooting, also showed a unique collection of *Irises*, amongst which were many fine kinds. Messrs. Hooper furnished stands of *Pansies*, *Ranunculus*s, and *Pyrethrums*; and Mr. H. J. Elwes showed an interesting

group of bulbous plants, consisting of Lilies, Irises, Cyclobothras, *Cypripedium pubescens* and *C. spectabile*, and a remarkably fine example of *Orechis foliosa*. Mr. G. F. Wilson contributed cut blooms of Lilies, amongst which were fine flowers of *L. Krameri*, *L. Szovitzianum*, and *L. Washingtonianum*. Mr. Turner showed boxes of Picotees and Pinks in excellent condition, and Messrs. Barr & Sugden, Covent Garden, also exhibited good stands of flowers of hardy herbaceous plants. In the class devoted to dinner-table decorations there was a smart competition; the first prize was awarded to Messrs. Pounce & Sons, Westbourne Grove. The arrangements in this case were of a very simple but tasteful character, and the flowers used only such as may be found in any small garden. The decorations to which the second prize was awarded came from Miss W. Wood, Albert Gate, and consisted of Lilies, Heaths, Irises, Orchids, Isopleps, and light Ferns, tastefully arranged in three glass épergnes. A good arrangement was also furnished by Mr. W. Young, Camden Square. Messrs. Dick Radclyffe had a table filled with ornamental gilt épergnes and stands, but unfortunately too crowded to be seen to advantage. Bouquets were numerous; the best pair came from Miss Moyses, Belgravia, and consisted of Tuberoses, Eucharis, Jasmynes, Tea Roses, Phalanopsis, and scarlet Bouvardias. Mr. W. Stone, Centre Avenue, Covent Garden, showed a group of twenty-four bouquets, all of which were tastefully put together. One of the most admired floral arrangements came from Mrs. M. Hodgkins, Hyde Grove, Manchester, it consisted of silvery skeleton Fern fronds, leaves and flowers of various descriptions, the colour having been extracted by some method known to few except the exhibitor; they were arranged in wreaths, bouquets, &c., and placed on black velvet, and the effect was excellent. We were informed that such bouquets were much appreciated in winter, when real flowers are scarce.

Fruit and Vegetables.—The best collection of fruit came from Mr. Miles, gardener to Lord Carington, who had excellent green and scarlet-fleshed Melons, *Violette Hâtive* Peaches, remarkably well-finished bunches of Black Hamburgh and Foster's White Seedling Grapes, good Figs, Strawberries, and Cherries. Mr. Cox, Madresfield Court, and Mr. Goodacre, Elvaston Castle, also staged meritorious collections, consisting chiefly of well-grown Melons, Pine-apples, Grapes, and Peaches. The best Pine-apple came from Mr. Colman, Eastnor Castle, Leicestershire; it was of the Black Prince variety, well ripened, and large in size. Mr. W. Toomer, gardener to W. Knowles, Esq., staged excellent Queen Pine-apples each weighing upwards of 5 lb. Mr. Bates, Poulett Lodge, Twickenham, also had three Queen Pine-apples in good condition. From Mr. Akehurst, gardener to S. Copestake, Esq., Kentish Town, came some remarkable specimens of Black Grapes; they were not so large in the bunch as some which we have seen, but the berries individually were large and well coloured. The three largest bunches came from Mr. Edwards, Liphook, Hants, but they were deficient in colour. Mr. Farrance showed an excellent 15-lb. basket of Black Hamburgs. Well-finished examples of Muscat of Alexandria came from Mr. Edwards, and Foster's White Seedling in excellent condition was furnished by Mr. Bates, Twickenham, while Mr. J. Horwood, Farnborough, had fine bunches of Buckland Sweetwater. Nectarines were well shown by Mr. Colman, Mr. Horwood, and Mr. Hinds of Otterspool. The best Peaches came from Mr. Colman, who had the finest examples of the Abce variety we have seen this season; the same exhibitor also furnished half-a-dozen fruits of Victory of Bath Melon, and Mr. Hinds had a fruit of the old but seldom seen Conqueror of Europe Melon. Dishes of Sturmer Pippin and White Nonpareil Apples, good, considering the season, came from Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park. Strawberries of the Oscar variety were shown in good condition by Mr. Hinds; and Mr. Waters, gardener to Sir W. Bagge, had good fruits of British Queen. Of vegetables only three collections were shown. The first prize was awarded to Mr. Miles, Wycombe Abbey, who had fine Tomatoes, Broad and French Beans, and Onions. Mr. W. G. Pragnell, Sherborne Castle, Dorset, was a close second, with remarkably fine heads of Early London Cauliflower, Globe Artichokes, White Naples Onions, William the First Peas, and Telegraph Cucumbers. Mr. A. Harwood, Colechester, showed 120 heads of Asparagus, of very large size and excellent in quality; and Mr. Amys, Chadwell Heath, sent a well-grown brace of Improved Telegraph Cucumbers.

Miscellaneous Subjects.—From Messrs. Barr & Sugden came a group of Lilies of the Pyrenaicum and Bulbiferum sections, intermixed with a few plants of *Lilium auratum*. Mr. Richard Dean had a good group of herbaceous plants suitable for bedding purposes; and Mr. Roberts, gardener to W. Terry, Esq., showed a collection of old-fashioned border plants in good condition. Messrs. Barron and Sons, Elvaston Nurseries, exhibited new hardy Conifers of a meritorious character. Messrs. Ivery & Sons, Dorking, contributed a bank of hardy Ferns, consisting of all the best of cultivated kinds. Messrs. Veitch showed a group of dried Grasses and flowers tastefully arranged and much admired by all who saw them. Messrs. Hooper & Co., Covent Garden, also exhibited a large group of dried flowers and Grasses. The blue and white variety of *Campanula media* *Calycanthema* was shown in fine condition by Mr. Appleby, Boxhill Nursery, Dorking. From Mr. James, Isleworth, came a miscellaneous group of Pelargoniums; and Messrs. Charles Lee & Sons had their new *Cornus Mas aurea elegantissima* in good condition. Messrs. Dick Radclyffe & Co. contributed among other garden appliances miniature fountains, tastefully associated with Ferns; and Messrs. Lane & Sons, Berkhamsted, had an interesting collection of pyramidal Ivies. Messrs. Read & Co., Regent Circus, showed examples of garden syringes and pumps, amongst which we noted many improvements on the ordinary forms of construction. Messrs. W. Hatchman & Co., Wood Street,

London, showed examples of their patent garden tents and canopies, with netting, seats, &c.; the tents, which are made on improved principles, are light and elegant, and calculated to be largely used as summer-houses, &c., during the sunny months of the year.

Pelargonium Society's Exhibition.—This was in all respects excellent as far as the plants themselves were concerned, but, as regards numbers they were, perhaps, not so great as last year. In the class for six large Show Pelargoniums, Mr. Charles Turner, Slough, gained the first prize with brightly-flowered, healthy specimens of Prince of Prussia, Prince Leopold, Highland Lassie, and other equally attractive varieties; the next best came from Mr. Weir, gardener to Mrs. Hodgson, Hampstead, who furnished good plants of Lady of the Lake, Ariel, and Victory. In the class for four, Mr. Turner had well-managed plants of the brilliant-flowered Silvio and the white and purple Virgin Queen; and E. B. Foster, Esq., Clewer Manor, showed good examples of Despot, Artist, and a brilliantly-flowered kind named Illuminator. Amongst Fancies we noted fine examples of Lucy Turner and Princess Teck, from Mr. Weir; and good plants of the old Evening Star and the delicate Nelly Fordham from Mr. Turner. In the class of eighteen Show varieties, Mr. Turner exhibited well-flowered plants of Duchess of Edinburgh, Queen Victoria, and Digby Grand; and Messrs. J. & J. Hayes, Edmon-ton, had good examples of Prince of Wales, Triumphans, The Shah, and others. Large plants of the Zonal section were well represented by Mr. Catlin, gardener to Mrs. Lermite, Finchley; the most noteworthy amongst them, perhaps, were the salmon-coloured Mrs. Catlin, the brilliant Scarlet Corsair, and the soft crimson Hebe. The same exhibitor had also fine plants of the decorative or nosegay type, amongst which were brightly-flowered specimens of Mrs. Turner and Miss Saunders. Mr. Birse, gardener to J. H. Lermite, Esq., Finchley, had good plants of Pearson's Ethel, John Fellows, and Maud. Smaller plants were also shown in groups of eight, the best of which came from Mr. Catlin. Messrs. E. G. Henderson showed Queen of Stripes, a beautiful Carnation-flowered variety, dwarf in habit, and in all respects promising. Mr. Williams had a group of his new Show Pelargonium Dr. Masters', of which mention is made elsewhere. From Mr. Turner came an extensive miscellaneous group of Show and Fancy kinds, which were much admired, and which formed one of the most important features of the show. The best double white variety came from Mr. Burley, and was named Bridal Bouquet, an excellent kind for use in bouquets or floral decorations. The same exhibitor had also a miscellaneous collection of Pelargoniums, consisting of bronze, Zonal, silver-edged, and double-flowered varieties, all of which were remarkable in their way. Tricolors were well shown by Mr. W. Meadmore, The Nurseries, Romford. Mr. Turner had a group of double kinds in excellent condition, amongst which were good plants of Neomie, Asa Gray, and Illuminator. Cut blooms of Zonal Pelargoniums were well shown by Mr. Cannell, Swanley, Mr. Pearson, Chilwell and Mr. Burley, Brentford; the first named had good trusses of New Life and Lady Sheffield, and Mr. Burley had good specimens of Tom Bowling and Double varieties.

NOTES AND QUESTIONS—VARIOUS.

Establishing the Caper-plant.—Can any of your readers give me any suggestions as to the means of introducing Caper-plants into my garden. They grow wild outside my gate, but I have hitherto failed in all my efforts to induce them to take root on any of my walls.—*CARR, Naples.*

Wash for Rose Trees.—In reply to the enquiry made by "Marchal Niel" (see p. 612), I can recommend the following recipe, which I have used for years with unvarying success:— $\frac{1}{2}$ lb. of soft soap dissolved (not boiled) in soft water, 2 oz. of strong Sagu Tobacco, boiled slowly for about an hour, and 1 oz. of bitter Aloes, well mix with three gallons of warm water, and syringe or dip the shoots affected with blight or fly in it.—*WICKHAM.*

Rose Beetles.—I have sent you three beetles which have been, and still are making sad havoc with my Roses, especially standards. They lie concealed, in the daytime under leaves or any other covering, and about dusk commence their work of destruction. They not only destroy the young buds, but take off the bark. Those trees huddled rather late last year are completely ruined. R. J. T. [The two larger beetles (black) are *Otiorynchus fulvipes*; the smaller sandy-coloured one is *Otiorynchus notatus*, both gardeners' enemies. Hand-picking both of the perfect insect and grubs in the ground is the only thing that seems to get the better of them, and of course that can only be done on a very small scale.—A. M.]

Plantains on Lawns.—An amateur's lawn, more than an acre in extent, is covered with several kinds of Plantain too thick to eradicate by hand. Can any reader of THE GARDEN kindly suggest a remedy? Will lawn sand answer the purpose? and if so, will it destroy the small Clover, and at what time of the year is it best applied?—*BERRIS.*

Laburnums among Evergreens.—In shrubbery borders composed mainly of evergreens, Laburnums are highly effective when planted at certain intervals apart. Thus situated their golden tresses, backed up by the dark groundwork, are seen to advantage. The Laburnum being of a light feathery growth may be pruned to occupy but a small space.—*P. G.*

Curious Tree-planting Custom in Switzerland.—One of the many customs in Switzerland which leave a pleasing remembrance of a visit to that country, is that of planting trees on the occasion of a marriage or birth in a family. This is made an event of great importance among the better class of peasantry. All the members of each family meet at the house of the bride or the home of the bridegroom, and forming a procession, march to the spot, where after some complimentary speeches and expressions of good wishes, the tree is planted. This in those cantons where Vineyards flourish is usually a Vine.

"This is an art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

THE TREES ON THE THAMES EMBANKMENT.

A PARAGRAPH having appeared in the "City Press" containing misleading statements concerning the trees on the Thames Embankment, we think it only justice to those who are responsible for them to put the matter in a true light. The writer states, among other things, that the trees,

had they been judiciously managed, would have been by this time perfect pictures of beauty and symmetry, instead of the wretched, mutilated, arboreal skeletons they now appear, producing considerably less foliage than they had the second year after planting. Will any member of the Metropolitan Board inspect the Plane trees in Battersea Park, grown as they should be? Or if that be too far, will they inspect the lines of Planes planted in the Temple Gardens about the same time as those on the Embankment, but of little more than half their size or value, although now vigorous and healthy?

In the first place, the trees on the Thames Embankment are really in a very promising and healthy condition; they have been pruned, so as to open them well up, to prevent the wind from blowing their tops off, when young and not established. The second year after they were planted the heads of a good many of the young trees were blown clean off. By "opening" up their heads judiciously until they are strong in stem and root, the wind passes through without hurting them. No harm is done in any way to the health, form, or vigour of the tree; on the contrary, the practice helps it in all ways in a position more exposed to strong and sudden winds than in any park or garden. With reference to the trees in the Temple Gardens they differ mainly from those on the roadway by being mop-headed, from which they would probably suffer were they not better sheltered than their neighbours. They certainly promise to be beaten by those on the Embankment as regards form and vigour; of course a tree in a city garden has a much fairer chance than in a roadway, where gas and sewer pipes, flagstones, &c., surround it on all sides. With reference to the trees in Battersea Park to which allusion is made, these are the facts:—They were planted in 1863 or 1864, and they were pruned in precisely the same way as the trees on the Embankment until the year 1871; every year since they have been pruned to some slight extent. The trees on the Embankment now being in many cases well established, it is not intended to prune more than is necessary to preserve the natural form of the trees, where interfered with by the wind or accidents. We remember when they were first planted a well-known and experienced planter expressed his doubts as to their thriving, owing to the high winds, combined with the other adverse influences of the position. Seeing, notwithstanding, the excellent results already obtained, most people will admit that their condition is a matter for praise rather than condemnation. We can say, from a recent examination of the Paris trees, that those on the Embankment promise to equal the best of them at no distant day. If we had any remark to make to the authorities, it would be this—thin the trees themselves in good time as boldly as you have thinned the branches, and you will some day have a nobler avenue of trees than any in Paris, where tree planting in the streets was begun on an enormous scale many years before it was in London.

WOOD PRESERVATIVES.

ACCORDING to observations made on a railroad in Germany, the proportion of renewals was, with Oak sleepers (not treated) after twelve years of service, 74.48 per cent.; with Oak sleepers treated with chloride of zinc, after seven years, 3.29 per cent.; with Oak sleepers impregnated with creosote oil, after six years, 0.09 per cent.; with Pine sleepers impregnated with chloride of zinc, after seven years of service, 4.46 per cent. The practice of this railroad since the year 1870 has been to employ only Oak for sleepers, which are impregnated either with chloride of zinc or with creosote oil. My own observations confirm these facts after nearly seven years experience in creosoting gates and fencing materials. The

first fence put up with creosoted wood was in September, 1870; it was a three-rail, split Oak fence (partly sapwood) enclosing a new plantation. As this was our first experiment, I put in a few lengths of split Oak and sawn Larch posts, rails, and stakes uncreosoted. I inspected this fence recently, and the result is that the creosoted portion is as sound as possible; the posts are quite firm in the ground, and not a particle of fungus or Lichen is to be seen on it; indeed, it is as clean as it was on the day on which it was fixed; whereas, the uncreosoted portion exhibits a striking contrast, the posts near and under the surface being covered with fungus, and already loose in the ground through decay, while the upper portions of the posts, the rails, and stakes are covered with Lichen and Moss. I find that wherever creosote is present, none of these vegetable growths can exist. When this fence was erected, I was doubtful whether sappy Oak could be rendered more durable by means of creosoting; I am, however, now thoroughly convinced that when creosoted it will resist decay for many years. There is one important matter that is necessary, and that is, the timber should be thoroughly dry and seasoned before being immersed in the pickling tank; indeed it should be split or sawn and stacked for several months previous to being subjected to the creosoting process. I am trying other experiments with various sorts of creosoted timber for fencing. Scotch Fir was at one time considered useless for sleepers, but it is now used extensively for that purpose in a creosoted state on the South-Western Railway. We have sold many thousands of Scotch Fir trees to contractors for sleepers, and at present we are in treaty respecting another large supply for that purpose. Larch, Spruce, and other thinnings of plantations, if barked and seasoned, and afterwards creosoted, are rendered very durable for rails, stakes, and hop-poles. Thus treated they will probably last double the number of years that they would do if they were not creosoted.

G. B.

SPRING GARDENING AT CASTLE ASHBY.

SPRING flower gardening has been a great feature here for some years, and a long-continued practice and study of the habits and flowering time of spring flowers has enabled me to select such as are most suitable for a display commencing in ordinary seasons about the second week in April and continuing on until the second or third week in June, when they have to give place to plants for summer bedding, which, however well done, is only second to the spring display. Every one should therefore take a lesson from Nature in this matter, and supply the vacancy which occurs so generally in garden decoration during March, April, May, and June with spring flowers, selecting from the many and great varieties of beautiful and almost entirely neglected plants, such as will afford a display through the early spring months onwards. The sorts of plants used are not of the least importance if they furnish the proper colour and yield flowers at the required time; they should also possess suitable habit and plenty of bloom, both of which are to be found amongst the attractive varieties which we now have at command, British as well as exotic. Although we have a display more natural and even more beautiful than in summer, and although of some kinds it requires a much greater number, they can be produced without the expense of house or fuel; consequently this system of flower gardening will doubtless become much more popular than at the present time with all lovers of natural-home floral beauty; and in addition to this kind of spring flower gardening, the more natural semi-wild and woodland walks and waysides may also be much improved in appearance. Now that the bloom of early spring flowers is at an end, a word about their future welfare may not be out of place. We must, in order to insure a good and satisfactory result next spring, attend to their little wants by seeing that nothing suffers through drought, or that the plants do not become choked by long Grass or weeds being allowed to grow amongst the clumps of Primroses and their hybrids of many colours, Polyanthus, Daisies, &c. They receive more injury by the non-observance of this than from any other cause. We are too much inclined to think because they are wild or semi-wild that they will care for themselves and supply their own wants at this season of the year, but this is

a mistake. It is also needful to see to the many small seedlings which appeared early in spring spontaneously round about the clumps of old plants, and which will now have grown large enough to be seen amongst the Grass; it will greatly improve the growth, if time can be spared to pick out the Grass by hand or cut it away by a small pair of shears; they will flower abundantly in spring if carefully attended to, and will bloom better and appear more natural than plants introduced from the seed or nursery beds. The same rule applies to all kinds of plants used in a semi-wild state. On my first establishing a semi-wild garden, and paying a little attention to the woodland walks here, I resorted to the formation of stone beds cropping up out of the earth a little above the surface in large spaces—not little dots; these beds of stone are now covered with Ivy of different kinds, Vincas, Aubrietias, Hypericum, Alyssums, &c.; various kinds of bulbs are planted about them, and grow up amongst the green plants. These raised clumps serve to undulate the surface, and produce a charming effect when clothed with Primroses of all colours, Polyanthuses, Myosotis, Violets, Cerasiums, and many other kinds of early flowers, all of which spring up spontaneously round about the clumps, and require little or no attention except clearing the Grass from around them. In order to give foliage effect Cardoons, Globe Artichokes, Common Rhubarb, Heracleums, some of the strong-growing Herbs, such as Balm, Tansy, Mallows, Golden Thyme, Polygonum, Phytolacca, Hyoseyamus, Helleborus, tall-growing kinds of Campanulas, Wallflowers, Double Furze, Lunaria, Japanese Pyrethrum (single and double), are introduced. To these are also added numerous other plants, all grown in clumps in a semi-wild state on ground occupying a long range of bank, which slope down to a lake below. In the bank near the water's edge I have here and there blocks of stone; these are covered with Aubrietias, Daisies, Viola cornuta, and numerous others; German Irises are also planted in great clumps and do well. I have likewise introduced a great variety of Willows for effect. It is necessary to annually cut them down to the ground in order to produce the various colours in the young wood. I have here enumerated only a few of the many introductions to my bank of spring flowers, which are now fast fading and going down to rest, only, I hope, to appear again with increased beauty and freshness in the forthcoming spring.

G. B.

MR. GERARD NOEL ON RICHMOND PARK.

In reply to a question by Sir G. Campbell, in the House of Commons the other night, Mr. Noel said:—With regard to opening footpaths in the copses at Richmond Park, I fear that would be impossible. They are planted to beautify the Park and to replace trees which in the course of time perish. If paths were cut through the plantations, great expense would be incurred from the amount of fencing which would be required to keep out the deer, and after the lessons on economy I have this year experienced from hon. gentlemen opposite, I hardly like to embark in fresh expenditure on the parks. [We are glad that it is so, because Richmond Park is more beautiful by far than it is likely to be if walks be made through the copses, &c. Richmond Park is the finest in its way in the environs of London; it would be the greatest mistake ever made to run walks through it, "like those in the Bois de Boulogne." If for no other reason than as a charming contrast to the other London parks, it ought to be kept mainly as it is. If landscape gardening generally meant developing the natural beauty of a place, we might offer other advice, but till we have a school of landscape gardeners who justify their name, we trust Mr. Noel's view will be followed.]

Calceolarias at Clapham.—Quite an exhibition of Calceolarias belonging to the herbaceous class may now be found in the gardens of Mr. Hudson at Clapham. They are chiefly in 6-in. pots, planted in light, fibrous loam; they are kept clear of insects during the growing season by means of frequent fumigations and abundance of air and water, and they are now furnished with large, healthy leaves, which completely hide the pots, and as regards the flowers they are produced in heavy masses on stalks not more than 10 in. or

12 in. in height. About 150 such plants as these may be seen arranged here on the stage of a greenhouse, where their well-shaped and variously-coloured flowers associated with those of other plants have a charming effect.—C.

HOSE-IN-HOSE POLYANTHUSES.

SURELY Mr. Wooler (see p. 527) cannot be the originator of the golden Hose-in-hose Polyanthus. The particular Hose-in-hose of which I previously made a note was a seedling from Golden Gem, a variety to which a certificate was recently awarded at South Kensington. It was raised in Dorsetshire by an admirer of these old-fashioned flowers, who has long made them subjects of special care. That Mr. Wooler may have raised yellow Hose-in-hose Polyanthuses, I do not dispute, but he certainly was not the originator of the one in question. It should be known that the extreme south-west of England has long been rich as regards these curious and varied forms of Polyanthus, but it is only now and then by chance that they make their appearance in commerce. A golden-yellow Hose-in-hose came here from Ireland, where it originated, and others from other sources. All the fine duplex varieties came to us originally from Germany, and as regards the late Mr. Donald Beaton's statement that the Hose-in-hose does not reproduce itself from seed, I can assert that these fine duplex forms do so freely. A very fine pure white and an equally good orange Hose-in-hose has originated out of these, and flowered for the first time this year. I differ from Mr. Wooler in his estimate of the value of double Polyanthuses; as far as I have seen doubles, I find them to be only single flowers spoilt. Let lovers of the curious and abnormal say what they may, a good head of bloom, whether on one of our charming single Primroses or rich Polyanthuses, is greatly to be preferred to that of the best doubles. The features of a good single flower in either of these are the elevated and refined thrum eye, the beautiful, clear, golden or lemon centre, and the dense, rich, well-defined outside ground-colour. To attempt to force up petals into the eyes of these gems would be a species of floral sacrilege, spoiling one of the gems of earth to produce a monstrosity. After all that has been written regarding them, how much less beautiful are the semi-double and double Chinese Primulas than the single varieties; and what double ordinary Primrose can excel a single form, in addition to which we get not only much less flower, but plants with weakened constitutions? In the open ground where, during the year, the rich purples, violets, crimsons, reds, and other choice single kinds will thrive luxuriantly, the dark-coloured doubles would die. It is only the common sulphur, white, and lilac sorts that are thoroughly hardy. Whether these doubles originated from seed or as sports is one of those things that are buried in oblivion; but I rather incline to the latter idea. If they had come from seed, it is probable that we should yet be producing new kinds; but in all my experience of single Primroses I have seen nothing likely to lead up to a double flower. A few years ago I found in a market garden a plant of the Lilac Primrose that had reverted to a single form. I kept it for a few years and propagated it, and it flowered freely, but the flowers were either devoid of style, or had it imperfectly developed, therefore did not produce seed; through lack of vigour it has since died.

A. D.

The Abele Poplar.—Mr. Berry's notice of this tree (see p. 513) reminds me of one peculiarity belonging to it not generally known, and that is that it is the very best of all trees for sea-side planting. On the west coast of Lancashire, in and about Southport, where there is scarcely an ounce of soil in the whole parish, and where the west wind seems always blowing, this tree thrives to perfection; when used, however, as a nurse plant, owing to its having in a young state a kind of sprawling habit, it requires well looking to, or it would soon monopolise the whole wood, growing into a tree before other kinds have fairly taken hold. Whatever may be its merits as an ornamental tree, it is likely to be eclipsed by the far handsomer *Populus argentea*, or Silver Poplar, a tree with a more upright habit, and quite as quick in growth as the former, with the under sides of the leaves densely silvery or tomentose.—THOMAS WILLIAMS, *Ormskirk*.

Pelargonium Cooperi.—This pretty little *Pelargonium* is perhaps not so well known as it ought to be; the flowers are of no importance, but the leaves are very beautiful, about the size of a shilling, and intensely green, with a heavy black horseshoe or zone. Its habit being diffuse or trailing, it makes a neat pillar plant, or for training over the handles of rustic baskets. Trained on a wire, too, as an edging to beds of *Pelargoniums*, I fancy it would have a beautiful effect; it is a rapid grower, and is easily raised from seed.—THOMAS WILLIAMS, *Ormskirk*.

NOTES OF THE WEEK.

ERINUS ALPINUS ON ROMAN RUINS IN NORTHUMBERLAND.—On Tuesday last I took some friends to see the excavations in Chesters Park of the ancient Silurian station on the Roman wall. The walls of the houses stand from 3 ft. to 6 ft. high; we found the joints in the masonry filled with thousands of fine showy plants of *Erinus alpinus* in full bloom, chiefly in those parts of the ruins where cement has been used, as in the bath-rooms, tepidarium, &c. The plants first made their appearance a few years ago soon after the buildings were uncovered. Their origin has been the subject of not a little speculation, of which there has been an abundance lately in trying to account for the treasure discovered last autumn at the adjoining station of Procolitia, consisting of some 30,000 Roman coins.—W. A. T., *Hesham*.

LOBELIA THE BRIDE.—This is the name given to a new white-flowered *Lobelia*, which has during the past few weeks made its appearance in Covent Garden Market. The plants are grown in 5-in. pots, and the flowers, which are larger than those of the common *L. speciosa*, are of a pure white colour, and are produced in abundance. The habit of the plant appears to be such as to render it a very desirable kind either for pot or border culture, and it is indeed in every way the best white-flowered *Lobelia* we have yet seen.

LILIUM GIGANTEUM AT HOLYROOKE, CO. WICKLOW.—There are just now in flower in the conservatory here what appears to the writer to be two unusually fine pot specimens of this stately Lily. The height of the stems, as taken on Saturday, 23rd inst., was 12 ft. 9 in., each carrying thirteen noble blooms fully expanded. The stems are stout in proportion to the height, and straight as a gun-barrel. The bulbs were only planted in March last. The soil used in potting was sound and rich, and they are at present in 14-in. pots.—B.

LARGE PITCHERS OF NEPENTHES SANGUINEA.—Messrs. Backhouse have recently had a specimen of this somewhat rare Malayan Pitcher-plant, one of the pitchers of which, including the lid, measured close upon 14 in. in length and 9 in. in circumference; the lid was about 3½ in., leaving nearly 10½ in. for the pitcher itself. Has this size ever been exceeded? Two or three plants of *Nepenthes villosa*, from Borneo, are also bearing very fine fringed pitchers.—P.

RHODODENDRONS AT THE BAOSHOT NURSERIES.—We do not recollect ever seeing *Rhododendrons* blooming so finely as they are doing this year, and a ramble through Mr. Waterer's grounds just now is most enjoyable. Their most conspicuous feature is the great number of handsomely-grown standards everywhere to be met with heads varying in size from 6 ft. to 30 ft. in circumference, and completely laden with bloom. The planting, too, has been so arranged that at every step fresh varieties may be seen, and when standing on the higher parts of the ground, and overlooking the whole, the effect is charming. Of new kinds there is this year no scarcity, and some amongst them are different from any hitherto seen in cultivation. The fine exhibition of *Rhododendrons* now on view at Hurlingham House, Fulham, consists of selections from these grounds. On the day on which it was opened it was visited by the Prince and Princess of Wales and the Princess Louise, in compliment to whom one of Mr. Waterer's best seedlings was named, by permission, *Rhododendron Princess Louise*.

FRUITS AND VEGETABLES IN COVENT GARDEN.—The supply of both fruits and vegetables to this market is now abundant. In the Centre Avenue may be seen large banks of first-class Peaches of *Grosse Mignonne* and other kinds, and huge baskets filled with most excellent Grapes. On one of the stalls we particularly noticed remarkably fine examples of *Muscad* of Alexandria, large both in bunch and berry, and the colour and finish such as could not fail to please the most accomplished Grape-grower. *Madrasfield* Court, too, may be seen in unusually good condition, clearly showing that it is a Grape which may be forced with advantage. Cherries, both black and white, are very abundant, and fast falling in price. Green Plums from Algiers continue to arrive, and their quality is improving. Apricots from Spain are more abundant than they have hitherto been, and they are, moreover, of better quality. In foreign Pine-apples there appears to be a falling off as regards the supply, and consequently English-grown fruits, though fairly abundant, are very high priced.

A NEW LONDON PUBLIC GARDEN.—It is satisfactory to find that, notwithstanding the great demand for ground for building purposes in London, open spaces are still being set apart for gardens. One of these, the burial-ground attached to St. Pancras Church (one of the oldest edifices of the kind in London), was opened to the public on Thursday last. Some time since it was wisely determined by the Board of Works to convert this disused graveyard into a public

garden, instead of allowing it to fall into the hands of railway companies or builders. The work, which has now been completed, consisted of removing monuments, gravestones, and other obstructions, making wide walks, and planting such trees as are best calculated to withstand a smoky atmosphere. As regards the garden proper, we regret to find the usual formal flower-beds (which will, of course, be bare throughout the winter months, through being planted with tender plants) monopolizing a great part of the space. In a few places here and there, however, some attempts have apparently been made to produce more natural effects.

LIGUSTRUM VILLOSUM.—This is a very beautiful kind of Privet now in flower, with long and drooping branchlets covered with pretty wreaths of white flowers and gratefully scented.

CANTUA DEPENDENS BLOOMING OUT-OF-DOORS.—Mr. J. Luscombe informs us that this handsome old greenhouse plant, seldom seen in bloom, is now in flower out-of-doors in his garden at Coombe Royal, in Devon. It is about 10 ft. high, and grows against a south-east wall.

THE COLORADO BEETLE IN GERMANY.—The Colorado beetle, in every stage of development, was discovered the other day, according to the "Daily News," in a potato field in the vicinity of Cologne. The field belongs to a butcher who had purchased some American bacon. The fact was immediately notified to the Ministry of Agriculture.

CYRTANTHUS MACOWANI.—This is again in flower with me, and its clusters of scarlet bells, set off to advantage by the dark green, smooth foliage, are very attractive. It is easily cultivated, and flowers readily in pots. In winter I keep it somewhat dry.—MAX LEICHTLIN, *Baden Baden*.

FLORAL DECORATIONS AT REGENT'S PARK.—The Royal Botanic Society deserves great praise for the spirited manner in which it encourages this branch of art; not only does it devote one of its greatest "field days" every year exclusively to this object, but it also offers prizes for it to the value of upwards of £120. If there be not a fine display of decorations on Wednesday next, it will not be attributable to want of variety in the objects for which the prizes are to be competed; since, besides the usual liberal offers for dinner tables, bouquets, &c., we find prizes offered for plants arranged in standing and in hanging baskets, and for the decoration of a balcony garden, and of a recess or fire-place in a room. We also find prizes offered for cut flowers arranged in a hanging basket, for a pillar or column, as a festoon, and as a wreath for the wall of a ball-room, as a head-dress, and in a device of any kind suitable for personal adornment. Last, not least, there are prizes offered for flowers which "only expand at night." And further, for fear this comprehensive list should not include everything, the judges are to be requested to award special prizes to any novel adaptation of natural plants, flowers, or leaves to decorative purposes, which they may consider worthy of notice. Our columns have contained, from the first so many original communications and illustrations respecting floral arrangements and decorations of all kinds, that we look forward with much interest to the display at the evening fête in Regent's Park on the 4th of July.—V.

ANNUALS GROWN IN POTS.—An interesting collection of these, consisting of about 20,000 pots, is now being exhibited by Messrs. Carter & Co., of High Holborn, in the gardens of the Royal Botanic Society, Regent's Park. No class of plants is more neglected by amateur floriculturists than hardy annuals, a circumstance probably arising from a general absence of knowledge as to their wants and beauty, and yet there is no other section of the plant world that more generously repays the cultivator for the very moderate care and attention involved in bringing them to perfection. Whether as decorative plants for the conservatory, or as flowering plants for the dwelling-house window, annuals are equally valuable, and the simplicity of their cultivation in pots is abundantly demonstrated by the exhibition in question, whilst the brilliant yet soft shades of colour, almost infinite in variety, combined with the delicate perfume that is emitted by many of the species, are singularly striking. To the general run of horticultural shows this exhibition indeed furnishes a pleasing contrast, and we believe the display to be quite novel in character. Many kinds of annuals would, if well grown, form objects as beautiful and showy as any plants seen at ordinary flower shows—*Rhodanthe Manglesi*, for example, yet how often do we see this a poor thin plant from being allowed to flower soon after being sown! What beautiful specimens, for instance, could be made of some annual Lupines, Sweet Peas, *Lobelia speciosa*, Larkspurs, Stocks, and various ornamental Grasses! Messrs. Carter have done well in producing such an extensive exhibition, and we trust that they will continue it every year until the public shall have learned more than they now know about hardy annuals.

FLORAL DECORATIONS AT THE CRYSTAL PALACE.

At the Rose Show held at the Palace on the 23rd inst., the classes for table decorations, bouquets, &c., proved as usual most attractive, though I saw nothing novel either in the way of stands or arrangement; the exhibits, taken as a whole, were pretty even and equal to those of former years, though I remarked many names missing of those who have been wont to exhibit yearly at Sydenham. In class A (open to all) the first prize was awarded to Mr. Chard, gardener to Sir F. Bathurst, Clarendon Park, Salisbury. This arrangement consisted of a Cocos in the centre of the table, round the base of which were grouped blooms of Pelargoniums, Spiræas, Stephanotis, Orchids, and Begonias, with the addition of Ferns and Grasses; also up the Cocos stem was twined a spray of *Lygodium scandens*. At the top and bottom of the table were March vases, with trumpets set in the upper tazzas. These stands were decorated with flowers similar to those employed around the centre-piece, with the addition of large, heavy spikes of a dark blue Larkspur rising out of the trumpets, one in each. The spikes of this flower did not match, and indeed its use was a sad mistake, as it quite spoiled an otherwise pretty arrangement; between the centre-piece and the stand at each end stood a large-sized specimen-glass filled with Corn-flowers, Orchids, Grasses, Ferns, &c.; outside of these were four more specimen-glasses decorated in a similar manner to those before described, and round the table were twelve small specimen-glasses, each containing a button-hole bouquet. In this class the second prize was awarded to Mrs. Burley, Brentwood; and the third to Mrs. Seal, Sevenoaks, who's table was generally admitted to be much lighter and prettier than that which gained the first prize. Mrs. Seal made a charming effect with little baskets of white Rose-buds and foliage. The first prize in Class B (amateurs) went to Mr. Sperling, South Norwood; it was like that to which the first prize was awarded in Class A. The centre-piece of this table consisted of a Cocos round the base of which were blooms of blue Larkspur and white Water Lilies, with the addition of trails of Japan Honeysuckle and fronds of *Adiantum Farleyense*. At each end were March vases, arranged to match and form a pair; in the lower tazzas were blooms of crimson Cactus, white Water Lilies, and Stephanotis, with fronds of Ferns lightly interspersed amongst them; in the second tier were trusses of Stephanotis and scarlet Bouvardia, with fronds of Maiden-hair Fern; the trumpets were filled with light plumes, consisting of Grasses, white Rhodanthe Manglesi, and pips of scarlet Bouvardia wired. Round the centre-piece were grouped four glass baskets, filled with Rose blooms, trusses of Pelargonium, and sprays of Selaginella; the effect of these baskets was spoiled by the flowers selected being too heavy; round the table were placed ten specimen glasses, each containing a small arrangement. Mrs. Seal was awarded the second prize in this class, and Mr. Soder the third. The first prize in Class C (ladies only) went to Mrs. Soder for a pretty table, the effect of which was spoiled by the glass baskets employed in its decoration being only half filled. In this class Mrs. Seal again took the second prize, and Mrs. Burley third. There were other classes as well as those I have enumerated for small decorations, such as single stands, hand and button-hole bouquets, &c. I stated in THE GARDEN lately that the Rose was one of the most difficult flowers to arrange satisfactorily, and this I think was well illustrated by those staged at this exhibition. Why were the table decorations not advertised this year? Formerly large posters announced "The great Rose show and exhibition of table decorations," but this year table decorations were not mentioned. It was well, however, that these classes were not forgotten in the schedule, or the exhibition would have proved a poor one. On account of the lateness of the season many vacant places were visible.

ANNIE HASSARD.

HERBACEOUS AND ALPINE PLANTS IN SCOTLAND.

ONE of the best collections of these which I have seen in Scotland is that of Mr. Robertson Munro, Abercorn Nursery, Piershill, Edinburgh, and should any one be in that district they will be well paid for their trouble should they visit this place. The following were most noticeable when I visited the nursery last week; being perfectly hardy it is a great pity that they are not more generally cultivated, for in a good collection something is always to be found in flower. I will begin with *Anthericum Liliastrum* (St. Bruno's Lily), the largest of this exceedingly interesting genus; of this plant a coloured figure was given in THE GARDEN (see Vol. IX, p. 12). Of *Aquilegias* I saw ten distinct species, amongst which the most beautiful perhaps was *A. glandulosa*; the interior base of its flowers is white, with pale blue petals; the spurs are short, and the flowers measure 2½ in. across: it is a native of Siberia. *A. chrysantha*, with its large yellow flowers, must also be very

showy. *A. Skinneri* is the best of the scarlet section: of this Mr. Munro possesses a white form. *Anemone sylvestris*, with its large white flowers, is very showy and attractive. The North American *A. dichotoma* was just coming into flower. *Sisyrinchium odoratissimum*, a rare plant, was in flower. Amongst the smaller-growing plants I noticed the *Edelweiss* (*Gnaphalium Leontopodium*); no difficulty is found here in growing this, one of the most interesting of Alpine plants; it seeds freely, and young seedlings were making their appearance round the old plants in abundance. *Hutchinsia alpina*, a plant not more than 2 in. high, was smothered with lovely pure white flowers. The Pyrenean *Arenaria purpurascens*, with its tufts of rosy-purple flowers, was also very attractive. Here also are grown a large variety of *Saxifragas*: *S. Burseriana* was just past; *S. hibernica* was very fine; *Silenes* also formed a very interesting class; *S. maritima* fl.-pl., with double white flowers, is worthy the attention of lovers of this beautiful family, the flowers are large, and pure white. Mr. Munro has also a very fine collection of *Primulas* consisting of upwards of thirty distinct species; he finds them succeed best in a northern aspect. They are all growing luxuriantly, and are pictures of health. I was sorry I was too late to see them in flower, but the following were still in good condition, viz., *P. scotica*, *P. farinosa*, and *P. abyssinica*, the last, with fine heads of golden-yellow flowers, being very attractive. *P. Parryi*, a kind with large rose-coloured flowers, and *P. sikkimensis*, pale sulphur-coloured and somewhat rare, were here quite at home, and flowering most luxuriantly. *P. Munroi*, a sort with pure white flowers and slender stems about 8 in. high, was also very fine. In a pit plunged in ashes, growing most luxuriantly, are about 4000 Alpine plants in fine condition. Mr. Munro informed me that he attributed his success to giving them a position where they get plenty of sun; in the summer months they are frequently watered during the daytime, and when I mention that such kinds as *Androsace*, *Soldanella*, and the scarcer kinds of *Dianthus* are flourishing well, it is at once apparent that this system is well adapted for the cultivation of this beautiful family of plants. Mr. Munro is a skilful hybridizer, and annually raises many seedlings; therefore, any one visiting his nursery is almost sure to find something interesting.

A. O.

Chamærops excelsa in Cornwall.—In THE GARDEN (see p. 515) I observe that Mr. Hovell, the gardener at Heligan, asks whether there is any better specimen of this Palm in the open air than the one at Heligan, which is 8 ft. in height, and was planted about twenty years ago; allow me to say that I have one, planted in 1852, and it is now much more than 8 ft. in height. The plant at Heligan I believe to be a male; mine is a female, and fruited after being fertilized by the plant at Heligan some eight or ten years ago. I have a male plant now in blossom, about 12 ft. high, and hope to fruit my large *Chamærops* this season again.—J. T. BOSCAWEN, *Lanmorran Rectory, Probosc.*

Littonia modesta.—This as commonly seen in plant collections is not a striking plant, but when well grown it is very beautiful, especially on rockwork. In April I put several good roots of it in a perforated pot, using a light sandy soil. I keep them in the greenhouse till all danger from frost is over, and then I plunge the pots in a warm corner of my rock garden; there they grow rapidly, and the roots escaping through the holes in the pots, strengthen the plants. They do not produce one or two small flowers, but many large and substantial ones in whorls one above the other. In autumn when the stems turn yellow, I take the pots into the greenhouse again, and keep their contents dry.—MAX LEICHLIN, *Baden Baden.*

Green Fly on Roses.—The following is a simple, quick, and effectual method of clearing Roses of this pest:—Pour water slowly from a watering pot with a fine or medium rose over the leaves infested, holding them very slightly with the left hand, gently moving the fingers all the time; the insects will wash off easily the moment they feel the touch, and cleaner than if the plants were syringed for a length of time they cannot bear the slightest contact with the fingers and water without going. If you shake the shoots occasionally during the water falling upon them, it will also help to clear them of the drowned flies. No wash is needed by the above method.—W. A. T., *Herkum.*

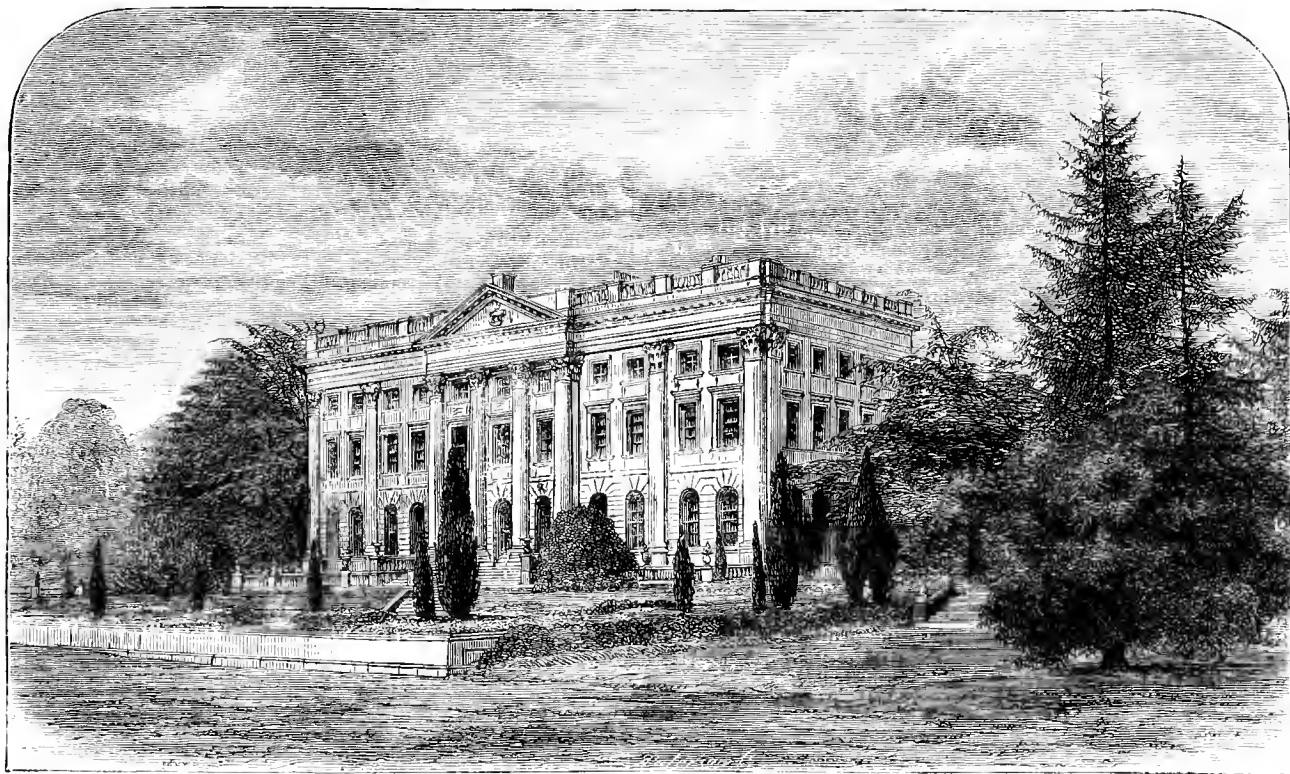
Louis Philippe Cherry.—As the Cherry season is near at hand, will those who love and have Cherries examine the *Louis Philippe*, and report on its merits? I imported the variety from Leroy in 1848, and at first did not value it as it deserves. I know it now, and in many respects it has no equal.—"Country Gentleman."

Echeverias in Flower.—These when seen in full flower in quantity, are very handsome, affording quite a new tint of a pleasing colour, viz., bright orange-red. I have here two borders, each over 200 ft. in length, containing four rows of *Echeveria secunda* glauca planted thickly in front, and they are the admiration of all who see them. Many of the spikes branch, making the bloom very abundant.—W. C.

MOOR PARK.

THIS, Lord Ebury's seat in Hertfordshire, and a place of considerable historical interest, is situated in a lovely valley, through which a fine view of the distant country in the direction of Watford can be obtained from the garden front. The park itself, 500 acres in extent, and well known as a place of public resort on all holiday occasions, is beautifully undulated, and contains some fine trees, chiefly Oaks. Two of these, protected and called "an aged couple," though now dead or nearly so, and covered with Ivy, must have been full-grown trees at the time of the "Wars of the Roses," with which it is said the history of Moor Park began. One of them, the largest, measures 28 ft. round the trunk. Near one of the entrances to Moor Park is a fine old tree still standing in stately grandeur, though now hollow with age, and mutilated by the fury of many tempests, which is called Wolsey's Oak, or the Cardinal's Oak, either because Wolsey planted it or sat under its once spreading branches. Of Cedars of Lebanon, too, there are some remark-

crop out of the ground here and there like Cypress "knees." Some of the branches, too, lying on the ground have layered themselves into it, and become well-rooted, independent trees. Here, close to the water's edge, are huge masses of Rhododendrons still in bloom, deciduous Cypresses, easily distinguished even at a distance by their peculiar shade of green, Giant Thujas, specimens of *Araucaria imbricata* at least 40 ft. in height, grand examples of Larch, Weymouth Pine, Common Spruce, *Taxodium sempervirens*, *Pinus Pinsapo*, *Cryptomerias*, and *Wellingtonias*, all occupying ground so elevated that from underneath the shade of their boughs the surrounding country can be seen for miles. The kitchen garden lies on the other side of the park; it contains long ranges of glass structure all well stocked with Vines, Peaches, and Pines bearing good crops, and heated by means of one of Cowan's lime-kilns. It warms some 5000 ft. of piping, but at considerable cost, owing to there being little sale for the lime, and from the labour expended in obtaining the chalk, which is burned along with



Moor Park.

ably fine examples, one of which, standing close to the mansion and of great height, has a trunk 26 ft. in circumference at 3 ft. from the ground, and there are others equally large. The accompanying woodcut shows the Italian garden, with its dwarf wall, which cuts it off from the park, its sentinel-like Irish Yews, Thujas, and Junipers, and its vases, statuary, and other appendages, belonging to a strictly geometrical garden, the only blemish, as we think, on the face of this lovely park. Much prettier are its surroundings, in which is a well-kept tennis lawn with a Sweet Brier hedge on two sides, and on a third Scarlet Thorns still loaded with blossoms. Beyond is what may be termed an arboretum, consisting of coniferous and deciduous trees, some of them unusually fine specimens. The prettiest spot, however, about Moor Park is what is called the old pleasure ground, a circular enclosure, in the centre of which is a small piece of water, and on the rising ground above it a temple, overhung by some of the oldest and finest trees on the estate. Some of these rise to a great height, their aged limbs being chained together to keep them from being damaged by the wind; their roots spread far and wide, and

Welsh culm and coke. It also contains several plant houses and pits; of the latter, one is wholly devoted to Gardenias, from which 1000 blooms have been cut since February. To fruit trees and vegetables some 8 or 9 acres are devoted, and nothing could be in better condition than the latter; but of the former, with the exception of Cherries, Currants, and Gooseberries, there is here, as elsewhere, but a poor crop. The famous Moor Park Apricot, as is well known, once flourished here. The parent tree, which was brought from the East by Lord Anson somewhere about 1754, lived on till towards the end of 1840, when it died.

Grevillea robusta from Seed.—The elegant Fern-like foliage of this *Grevillea* gives it an effective appearance in all descriptions of decoration, either for planting out during summer, or for the conservatory, drawing-room, or dinner table. It is very easily raised from seeds sown in heat, but they should be new, as failures may and do arise from sowing old seeds. Young plants a year old or so are very useful for the purposes just named. I have a number of young plants in 4½-in. pots sown last autumn. A mixture of sandy loam and peat suits them well: two-thirds of the former to one of the latter is a good proportion.—E. HOBNAV.

THE FRUIT GARDEN.

PROTECTING FRUIT TREE BLOSSOMS.

MR. HOBDAV, in his remarks upon this subject (see p. 516), says "that in bleak, exposed districts nothing but a glass covering for the finer sorts of wall fruit will in all seasons secure a crop." This I have proved to be sound advice, for on a glass-covered wall for these last fourteen years I have never missed harvesting a full crop of Peaches and Nectarines. This glass-covered wall is nearly 800 ft. in length, and is heated with two rows of 4-in. piping and one small saddle boiler, which raises the temperature inside 8° higher than that outside, and which is quite sufficient to prevent spring frosts from injuring the blossoms, and for ripening the wood in cold autumns. The only difficulty I find in managing the trees, is that the fruit sets so thickly every year that thinning becomes a tedious operation. This year it would have taxed Bishop Colenso's calculating powers to have counted the thinnings, which would, I have no doubt, have furnished a fair crop for all the Peach and Nectarine trees grown on walls in the district. One cause of the fertility of the trees grown in this structure is that the wood is thoroughly ripened every autumn, from having a little artificial heat at command, and another is the soil being particularly suitable for producing healthy growth in the Peach. The turfy surface of a magnesian limestone is used, and without adding any manure to it whatever, only mixing with it a lighter soil, to keep the limestone from getting too solid in dry summers. During growth, liquid manure is used to swell the fruit off, and some of the late varieties of Peaches, such as the *Desse Tardive*, *Barrington*, *Princess of Wales*, and *Salway* swell to a very large size. In the old kitchen garden here, where the situation was very low, being nearly level with the lake, Peaches and Nectarines grown on the south wall were two out of three years failures as far as producing crops were concerned, despite coverings of woollen nettings, frigi domo, and other materials. The best results from protection were where sprigs of Yew or Spruce were used, covered with old herring netting to keep the wind from blowing them off. Neither the Apricot, Peach, nor Nectarine trees could, however, be kept in a healthy state and free from mildew and canker. The late Mr. Mearns, whom I succeeded at Welbeck, tried to renovate some of the old Peach trees on the walls by raising them out of the old borders, and replanting them in turfy soil from the limestone rock; and it is astonishing how some of these trees recovered their vigour, for from a *Teton de Venus* Peach tree I once gathered some fruit 12 oz. in weight. When the new kitchen garden was formed the covering of the principal south walls with glass was determined on, and some healthy young trees were planted; the result has been highly satisfactory up to the present time.

WILLIAM TILLERY.

Welbeck.

FRUIT CROPS IN WORCESTERSHIRE.

THE general failure of outdoor fruits, more particularly Apples, Pears, and Plums, is now universally admitted, but the real cause of failure is by no means so clearly authenticated. We are too apt to attribute the damage wholly to frost, and doubtless such severe frosts as were experienced in the early part of May, when the thermometer indicated upon various occasions from 10° to 12°, with cold, cutting winds, and vegetative power at a minimum, did much damage to such fruits as were then in full blossom, and granting that Pears, Plums, and Cherries suffered to some extent therefrom, still I am inclined to believe with Mr. Fish, after close observation, that failure in these crops cannot be attributed to frost alone. The season was an unusually late one, quite a fortnight later than the average, and as fruit orchards in Worcestershire never presented a more promising appearance, growers fully counted upon reaping a rich harvest, when all at once the destruction of the crops, so far as early varieties of Cherries, Pears, and Plums were concerned, became apparent. But is it wholly to frost that the wreck of our crops of fruits is to be attributed? That stinging frost in the middle of spring, which killed our Pear and Plum bloom did not, most assuredly by direct action, injure our Apple blossoms which were afterwards developed in such profusion; a flimsy weakness of development, antagonistic to vigour, however, pervaded the Apple bloom, which was of short duration; and I firmly believe that immaturity of the wood

had much to do with the failure; the sap was unable to nourish the embryo fruit, and consequently it withered and dropped. Thus one of the severest and latest springs which we have experienced for years, following upon a wet, mild, ungenial autumn and winter, with scarcely a gleam of sun to ripen the wood, is in my opinion one of the chief causes as regards the failure of our early fruits. Protection, we find, did not save the crops, as those upon walls were equally affected with those upon standards. There have been great complaints even in the more favoured districts of Peaches and Nectarines suffering seriously from blister, which is due to impaired vitality and a low temperature. We have an average crop of Peaches and Nectarines upon walls on which not a single tree is without a crop, and yet from these the covers were removed previous to the occurrence of the severe May frosts. Small fruits promise fairly well, but we have no Pears and Plums. On late-flowering Apples and Bitter-sweets there is a crop, but fruits in general are a sad failure in this district.

GEO. WESTLAND.

Witley Court.

Fruiting of *Pyrus japonica*.—Although fruit crops are everywhere a failure this year, I have two trees of this—one scarlet, the other white or blush—and both are well set with fruit. On the scarlet one I can count upwards of sixty fruit, which is borne in clusters of from three to five. The blush is a smaller tree, but quite as well furnished with fruit, in proportion to its size, as the other. Many say their trees rarely ever bear; mine are planted against the house, the aspect of which is north-west; here they bloom somewhat later than on a south aspect, a circumstance which may account for their unusual fertility. The fruit, though very acid, makes one of the best of pickles, but it must not be gathered for such a purpose when ripe.—H. T.

Shanking of Grapes.—I have here two houses for the growth of Muscats, and in some seasons the berries shank badly, occasioned, I suppose, by heavy cropping. Quantity, however, must be had, and I try to put as much in the border in the shape of liquid manure as I take from the Vines in the form of fruit. I have noticed often that shanking begins at the end of the bunches, and on many occasions I have been told that the bunches were too long and did not look well on the dessert dishes. I therefore this season removed from the points of the bunches from 2 in. to 3 in. before they came into flower, and the result is noble, massive clusters, swelling away with great regularity. There is nothing new in taking off the points of bunches; I have done it thirty years ago, but the practice is not generally adopted. It seems, however, to be a step in the right direction as regards getting rid of that which no man knows, I verily believe—how to cure the shanking of Grapes.—R. GILBERT, *Burghley, Stamford*.

Effect of Spring Frosts on Sea-side Vegetation.—During the late severe spring frosts I noticed that the nearer one approached the coast the less observable were the effects of the frost; during the first week in May, Potatoes were killed to the ground with us under a double covering of fish nets, while on the coast about four miles distant they were not injured even where fully exposed. Fruit crops on the contrary are, however, worse on the coast than with us; the withering winds nearly destroyed the trees and bushes, and as a natural consequence the young fruits dropped off. We have abundant crops of bush fruits and Strawberries, also Cherries, Figs, and Pears—some trees on west walls even require thinning considerably. Apples are certainly much better than they have been for several years past, although why they have not all set well is a mystery, as I never saw such a fine bloom, or knew it to expand under more favourable conditions. It is certainly not frost that has made them drop. There is a good prospect of our having plenty of Walnuts, and if we have to deplore a scarcity of Apricots and Peaches, their absence is less felt than when the late-keeping fruits that supply the long winter months are a failure. Taken as a whole I expect that our outdoor fruit crops will fill the fruit-room shelves better than they did last year.—J. GROOM, *Henham*.

Pruning Gooseberries.—Gooseberry bushes require pruning twice a year, viz., in summer and in winter. I have bushes that have been planted about twenty years, and scarcely any of them on a single stem; they therefore throw up a great number of suckers from their centre, which I clear away at this season of the year, and shorten the young growths produced along the main branches to five or six leaves from their base; but, as a rule, if the branches be heavily laden with fruit, there is not that production of young shoots that there is when a scanty crop occurs. Now I hold that the more regularly these young shoots are produced along the main branches, the better will be the prospects of a crop the ensuing year, but I am censured for having young shoots, and told that I must have pruned improperly. My system of winter-pruning is to keep the centre

open, cutting all the young shoots not required to fill up vacancies, &c., back close to the base from which they spring, leaving a sprinkling of young shoots here and there to take the place of branches likely to become diseased and those rendered bare by birds. I do not shorten the points of the main branches until they are likely to overgrow the allotted space. It is said hereabouts Gooseberry bushes should not be pruned, or rarely so. Is that so? Will some one or two experienced cultivators of the Gooseberry oblige me by giving their opinions of the results of both systems?—J. M. D.

THE STEEL GLOVE FOR THE PHYLLOXERA.

This useful article, recently invented in France for the removal of the loose bark, &c., from the stems of Vines, is also used with good effect in removing Moss, &c., from other trees. A great deal of work may be done with it in a very short time, and the stems cleared of much that might afford cover to the eggs of insect enemies. It is very well made, and is lined with canvas to make it



convenient to the hand. The workman with his gloved hand grasps the stem, rubbing the glove up and down, and moving it round the stem removes all loose bark, &c., in an incredibly short space of time. It is formed of small steel chains; it is likely to be useful in our gardens for various purposes, though, so far as we know, it is not yet offered for sale in this country.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Aged Pear Trees.—Among the fruits exhibited by the Massachusetts Horticultural Society at the Centennial (says the "Country Gentleman") were Orange Pears from a tree 235 years old, Endicott Pears from a tree planted by Governor Endicott (Danversport) in 1630, and autumn Pears from a tree planted by Governor Prince in 1630.

Large Apple Orchard.—The "Prairie Farmer" says that the largest Apple orchard in the world belongs to R. A. Whitney, of Franklin Grove, Illinois, and contains 22,000 trees. It would be interesting to know how old the trees are, and what revenue they afford their owner.

The Vineyard at Castle Coch.—The Vines planted in the spring of 1875 in the Marquis of Bute's Vineyard at Castle Coch, near Cardiff, are now looking remarkably well even at this early stage of their growth, and there is every appearance of their carrying a good crop. M. Chauvenet, a Vineyard proprietor from the Côte d'Or, France, has been on a visit to Castle Coch, and expressed a very favourable opinion of them. He thinks the site and soil of the Vineyard all that could be desired, and states that the Vines are looking as well and quite as forward as those in his own Vineyard at Nuits, and he believes, from what he has seen, that the experiment will turn out satisfactorily. We understand that M. Chauvenet will visit Cardiff in the autumn to give the benefit of his experience in wine-making, and we hope that before many years have elapsed we shall have the pleasure and opportunity of tasting wines of home growth.—"Court Journal." [We think the plantation is made on ground too rich to give as good a result as might be obtained in this country.]

THE INDOOR GARDEN.

SPECIMEN DOUBLE-FLOWERED PETUNIAS.

THE Petunia can be grown in many ways; it may be planted out and used as other bedding plants are, flowered in small pots, or grown on into specimens. In the case of the double varieties, of which I am more especially speaking, specimens will be found the most satisfactory way of growing them; in fact, it is only in this manner that the full decorative value of the plant can be realised. With liberal treatment in the way of generous soil and careful attention, the flowers attain dimensions and acquire a colour unattainable under any other system of culture. In order to have large plants propagation must begin early, the kiuds required should be placed in gentle heat in December, and in January and February cuttings may be taken off, which should be inserted singly in thumb pots in a very light sandy soil, and set upon a slight bottom-heat. There they will soon strike root, when they should be removed to the cooler portion of the house, and shifted into 3-in. pots as soon as the roots have fairly touched the side of the cutting-pot. The soil used should be light and rich, very free, with quite one-third of silver-sand added to it. The choice of soil is very important in the present instance, for if at all sour or of a tenacious character the roots will not move, and the plants will become hard and stunted, and if this once take place it is extremely difficult to bring them into free growth again; in fact, the great secret of success in Petunia culture is to keep the wood growing rapidly without check, either through getting pot-bound, lacking atmospheric moisture, or becoming too dry at the root. They must be kept well stopped, as if neglected in this respect, especially during the earlier stages of growth, they will run up lanky and become eventually naked at bottom; the flower-buds, too, must be removed as soon as they appear. The object should be to secure a good base of healthy foliage, and therefore stopping the young shoots should form one of the most important points in their culture during the early part of their growth. It is better to repot often than to give large shifts, as is often practised; as soon as there is enough root to hold the soil together when carefully knocked out of the pot, the plant should be at once put into one a size larger. The soil should neither be rammed nor pressed between the ball and the pot, but merely shaken into its place by means of a gentle tap upon the potting bench; the surface should, however, be made firm, as water will not then run away so rapidly as it otherwise would do, but will gently permeate the whole body of the soil. The compost should be used in a rather moist state, so that immediate heavy waterings may be dispensed with; it is, in fact, better if, after being shifted, they can stand twenty-four hours without water, as in a genial atmosphere, with the soil of a temperature corresponding with that of the house when used, they will in that time strike fresh roots. By successive shifts they may be brought into 16-in. pots, which will be large enough for most purposes: if they have been well attended to they will then form handsome specimens, well clothed with foliage to the rim of the pot, and bearing a quantity of large, handsome flowers. As they advance in growth they will require staking, the shoots being brought out from each other as much as possible; if the shoot be neatly tied to the outer side of the stake, no unsightly effect will thereby be produced. The best place in which to grow them is a span-roofed house, for although they delight in warmth and considerable atmospheric moisture, it must be accompanied by plenty of light, and there must be the means of giving good ventilation when required, an operation in which judgment must be used, as, although plenty of air is required to prevent drawing, yet cold draughts must be at all times avoided. When they have attained the desired size they should be removed to a cooler house. If the pots are, as they should be, well filled with roots, a little manure water may be given occasionally, which will keep the foliage healthy and green, and materially aid the development of the flowers. If the plants have been well managed, the latter will be produced in great abundance, and will last long in good condition.

JOHN CORNHILL.

Byfleet.

TRAINING AND FORCING AZALEAS.

WHAT training Azaleas require should take place immediately they have completed their growth, in order that the young shoots may be readily bent to the required position, and assume a natural appearance, which they will not do if the tying be deferred till the wood becomes ripe and stiff. Of all forms to which Azaleas may be made to conform readily, the pyramidal is the most pleasing, requiring but little tying or attention after they are once put into shape, as the growth they make then is generally uniform and regular, and looks far better than when they are so exceedingly stiff and symmetrical as frequently seen at exhibitions, although there is a great improvement in this respect to what prevailed some few years back when crinoline shapes were all the fashion. In training use as few sticks as possible, and only those made of the best Baltic deal to insure durability, as nothing injures a plant so much as to be frequently piercing the ball, which cannot be done without damaging the roots, and it frequently occurs that many of the decaying ends of the sticks are left in the soil, where they are sure to breed fungi, which are so inimical to the welfare of the plants, that they soon throw them out of health, and ultimately cause their entire destruction. The stumps should therefore be pulled out by means of a pair of pliers, inserting the fresh sticks into the same holes, which, if not required, should be filled in with fine sandy peat. There are few plants better adapted for forcing than Azaleas, or that are so effective and useful when they come into bloom, and to fit them for this purpose they require a course of preparation, so as to get the buds well up and the plants early to rest. This may be done by gradually inuring them to the work in starting them a little sooner each year, and losing no time in getting them back into heat after they have done flowering, in order to get them to complete their growth, when after a few seasons they will come on almost naturally. There are some much better adapted for this purpose than others, and notably so the old Fielder's White, amœna, and Pauline Marder, the latter a double, soft pink-coloured variety, and most valuable in bouquets, where, owing to its great substance of petals, it is very enduring. The forcing at the commencement should be slow and regular, so as to give the buds time to come gradually on, when the flowers will be all the finer and more serviceable: in order to render them more durable, the plants should be elevated as near to the glass as possible, and have all the light obtainable at that early season of the year. It is surprising what a difference this makes in the substance and quality of the blooms, not only of Azaleas, but of all other plants subjected to artificial treatment, a fact that cannot be too strongly impressed on young beginners or those who have not had much experience in early forcing.

The only insects that affect Azaleas to any serious extent are thrips, which, if not seen to as soon as they make their appearance, increase at a rapid rate, and soon damage the plants so much as to destroy the principal leaves. Strong fumigations of Tobacco-smoke will kill all that are hatched; but not so the eggs, and the best way, therefore, is to syringe with Tobacco-water, to which 3 oz. or so of Gishurst or Fowler's Insecticide had been added. This will render it more powerful and penetrating, as otherwise it will not soak through the varnish-like covering with which the eggs are coated. Before this is applied, lay the plants on their sides on a trestle, with a tub or other large vessel underneath to catch the liquid as it drains from them and so prevent waste. In any case, none of it must be allowed to drain down the stems and enter the soil; and to prevent this the plants should not be placed in an upright position till thoroughly drained. After a few hours, to allow time for it to take effect, syringe or give the plants a good washing with clear water from the garden-engine, which will thoroughly cleanse them of any deposit left by the liquid, and wash away any thrips that may be hovering between life and death. S. D.

Imantophyllum miniatum.—This beautiful stove bulb well repays a little extra attention, for at this season large plants of it with brilliant heads of orange flowers, nestling amongst foliage of the deepest green, are highly effective. In order to keep the foliage, however, in good condition, the plants should not be stored in any dark corner, but kept in a conspicuous position, and their foliage is always ornamental.—J. Groom.

THE FLOWER GARDEN.

HARDY FLOWERS IN LONDON GARDENS.

THE warm weather and occasional showers which we have lately experienced have had a good effect on hardy flowers, and those who are fortunate enough to possess a good collection of them, will now be enjoying a floral feast. On the rockwork at Kew there is just now quite a profusion of plants in flower, amongst which we noticed *Orchis foliosa*, producing fine spikes even in the case of small plants; the deep purple-flowered *Delphinium cashmerianum*; and the dwarf rosy-flowered *Phlox ovata* are blossoming abundantly, as are also *Milla laxa*, and the feathery-looking *Dianthus superbus*. Plants of *Sarracenia purpurea* are now well furnished with drooping, reddish-bronze blossoms, rising from among clusters of pitcher-shaped appendages. *Darlingtonia californica* may also be found growing freely here, in company with *Cypripedium spectabile*, which is finely in flower. *Pentstemon glaucus* and *P. cœrulescens* are laden with blossoms, as are also plants of the rosy-flowered *Spiraea palmata*; and white-flowered Foxgloves are thickly studded with blossoms. *Anemone obtusiloba* is likewise covered with pretty white flowers, and the bright yellow-flowered *Chlora perfoliata* is also blooming freely. In open borders *Gaillardias* are becoming very attractive, and notably *G. aristata*, *amblyodon*, *Richardsoni*, and *rigida*. *Paris Daisies* (*Chrysanthemum grandiflorum*) are good plants for the flower garden, as is also the tall-growing yellow-flowered Sweet-scented Evening Primrose (*Oenothera odorata*). The large-flowered Everlasting Pea (*Lathyrus grandiflorus*),



Gunnera scabra.



Sedum cœruleum.

grown as a pillar plant is just now very effective. The double-flowered Scarlet Lychnis and its white variety are now blooming abundantly, as is also the tall-growing *L. Githago*. Plants of the rich crimson-blossomed *Linum grandiflorum* are now very showy, as are also the blue *L. perenne* and the white *L. monogynum*. Amongst other plants in flower may be named *Scabiosa Fischeri*, *Betonica grandiflora*, *Yellow Phloxis*, and abundance of blue *Salvias* and *Veronicas*. The large-flowered Musk (*Mimulus luteus*), growing in the form of tufts, is very pretty, as are also the Pea-blossomed *Nemesia floribunda* and the starry-flowered *Dictamnus*. *Gentiana cruciata* is opening its blossoms, and dense masses of the small bluish-purple-flowered *Specularia Speculum* are very attractive, as are also the stalwart blue and white *Campanula pyramidalis*, *C. Medium Calycanthema*, and the dwarf-growing *C. muralis*. *Geraniums* are still very showy, as are also the pale blue flowers of *Nigella damascena* and common white Pinks. S.

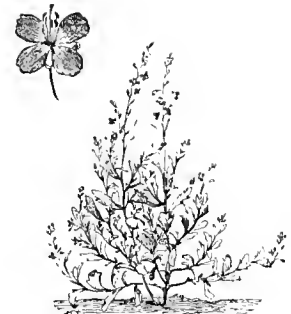
Salting Walks.—Large breadths of gravel are best salted to keep down weeds, and narrow walks also, if there be no danger of the salt being washed into the Grass margins. Several solutions are recommended for killing weeds, but salt is as good and cheap as anything. Solutions that vanish into the ground rapidly soon lose their effect, and the weeds grow again. Salt itself, if washed in by heavy rains as soon as applied, does not keep the weeds down for more than three months, as I have observed frequently. It should be applied during dry weather, and the longer it lies before melting the more lasting will be its effects. A sprinkling just sufficient to whiten the ground will be enough, but there is no harm in giving it stronger. Too weak a dressing acts as a manure, and, as is well known, the strongest dressing after it begins to get spent fetches up an abundant crop of weeds if there be any seeds in the gravel. A fertile cause of weeds in walks is leaving the edgings uncut till the Grasses seed. It is not necessary to cut the edges every time the mowing machine goes over the ground, but they should not be left too long.—J. S.



Gaillardia picta.



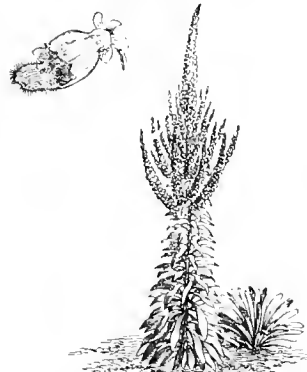
Phalangium ramosum.



Heliophila pilosa.



Mountain Coronilla (*C. montana*).



Rusty Foxglove (*Digitalis ferruginea*).



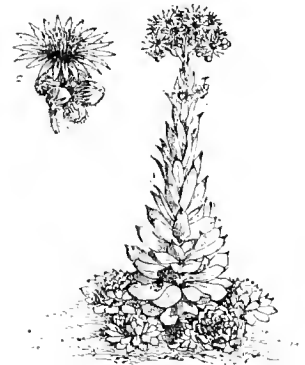
Small Quaking Grass (*Briza minor*).



Cow Parsnip (*Heracleum pubescens*).



Scarlet Lychnis (*L. chalcedonica*).



Houseleek (*Sempervivum tectorum*).



Heuchera micrantha.



Common Everlasting Pea (*Lathyrus latifolius*).



Phalangium Liliago.

SOME HARDY FLOWERS OF THE WEEK IN LONDON GARDENS.

CLEMATIS HENRYI.

FOUR years ago I received this Clematis from the Lawson Company, Edinburgh. During the journey, which was provokingly extended by a fortnight's delay in our Custom House, it had made long, colourless shoots several feet in length, so that when re-potted it was so weakened that two or three months passed ere we had hopes of its recovery. It was put out on the north side of a summer-house, where during the first summer it became so well established that we trusted it out for the winter, only coiling the stems upon the ground and covering them lightly with straw and leaves. That winter proved one of the severest ever known in our valley, the thermometer being one morning 23° below zero, and on a score of other days 10°, 12°, and 15° below that point. C. Henryi was, however, unharmed, as indeed were C. Lawsoniana and C. Symesiana, imported at the same time.

C. Jackmanni is one of the few large-flowered Clematises that are well known here; and it is considered by far the best. That it is still one of the best in England—who value the Clematis so highly—often admit while describing the latest and most improved varieties. But if I were obliged to choose between C. Jackmanni and C. Henryi, I should choose the latter. Henryi bears fewer flowers, it is true, but they are very large. I have just counted thirty-one fully expanded, that average in diameter from tip to tip of sepals 7 in., while the entire plant is permitted to cover a space only 2 ft. by 10 ft. Thus the flowers, if separated, would cover one-third of the area occupied by the plant. One of the flowers, when not quite fully expanded, was placed in a goblet of water upon a mantel-shelf. It lasted eight days in perfection, the sepals spreading out perfectly flat, and measuring just 7½ in. in diameter. Another small vase is now filled with three flowers interspersed with Fern fronds, forming a bouquet that is cooling and refreshing to look upon. The habit of this Clematis, too, is excellent; the leaflets are large, entire, of good substance, similar in shape, and together form as dense a mass of foliage as need be; the sepals, of which there are usually eight, overlap, and though tinted with lavender at first, soon change to a lustrous silver-white. There are few hardy climbers that bear both beautiful flowers and foliage; I know of none that so conspicuously excel in either respect as many of the Clematises. When the improved varieties come to be better known here, there can be little doubt that they will prove as popular with us as they are in England—at least, those varieties hardy enough to stand the climate of New York without protection. English catalogues give July as the time of blooming for C. Henryi; ours began to flower on June 1; it bloomed also last autumn until the buds were blighted by severe frosts. C. Lawsoniana has not yet flowered with us; it has never entirely recovered from its voyage, though slowly improving all the while. C. Symesiana has already borne two of its light blue flowers, which, though imbricated and of fine form, are smaller than those of C. Henryi.

E. S. CARMAN.

River Edge, Bergen Co., New Jersey.

A NATAL GARDEN.

GREAT shrubs of beautiful semi-tropical plants made tangled heaps of purple, scarlet, and white blossoms on every side; the large, creamy bells of the Datura drooped towards the red earth; and many shrubs of that odd bluish-green peculiar to Australian foliage flourished side by side with the sombre-leaved Myrtle; every plant grew in the most liberal fashion; green things which we are accustomed to see in England in small pots shoot up here to the height of Laurel bushes. A screen of scarlet Euphorbia made a brilliant pyramid against a background formed by a hedge of shell-like cluster Roses; and each pillar of the verandah of the little house had its own magnificent creeper. Up one standard an Ipomea twined closely; another pillar was hidden by the luxuriance of a Trumpet Honeysuckle, while a third was thickly covered by an immense Passion-flower. In shady, damp places grew many varieties of Ferns and blue Hydrangeas, whilst other beds were filled with gay patches of Verbenas of every hue and shade. The sweet-scented Verbena is one of the most successful and commonest shrubs in a Natal garden, and just now the large bushes which one sees in every direction are covered with projecting spikes of its small white blossoms. But the chief feature of this garden was Roses—Roses on each side, which-

ever way you turned, and I think of at least 100 different sorts. Not the stiff standard Rose tree of an English garden, with its few precious blossoms to be looked at from a distance and admired with respectful gravity. No: in this garden the Roses grow as they might have grown in Eden—untrained, unpruned, in enormous bushes covered entirely by magnificent blossoms, each of which would have won a prize at a Rose show. There was one Cloth of Gold Rose bush that I shall never forget—its size, its fragrance, its wealth of creamy, yellowish blossoms. A few yards off stood a still bigger and more luxuriant plant some 10 ft. high, covered with the large, delicate, and regular pinkish bloom of the Souvenir de Malmaison. When I talk of "a bush," I only mean the especial bush which caught my eye: I suppose there were fifty Cloth of Gold and fifty Souvenir Rose bushes in that garden. Red Roses, White Roses, Tea Roses, Blush Roses, Moss Roses, and last, not least, the dear, old-fashioned homely Cabbage Rose, sweetest and most sturdy of all. You could wander for acres and acres among fruit trees and plantations of Oaks and Willows and other trees, but you never got away from the Roses. There they were, beautiful delicious things, at every turn; hedges of them, screens of them, and giant bushes of them on either hand. Then, as though nothing should be wanting to make the scene lovely, one could hear through the fragrant silence the tinkling of the little spruit, or brook, at the bottom of the garden, and the sweet song of the Cape canary—the same sort of greenish finch which is the parent stock of all canaries, and whose acquaintance I first made in Madeira; a very sweet warble it is, and the clear flute-like notes sounded so prettily among the Roses. From blossom to blossom lovely butterflies flitted, perching quite fearlessly on the red clay walk just before me, folding and unfolding their big painted wings.

LADY BARKER.

Propagating Kniphofia caulescens.—Those who grow this handsome plant may be glad to know how to increase it. It seems to produce very few seeds, and those few will not all germinate; but finding my plant getting very untidy, I cut it off close to the ground in April. It had two heads, and I separated them and put them into the Cocoa-nut heap; there they have grown well, have made plenty of root, and one is going to flower. The stump left in the ground I did not disturb, and there are already half-a-dozen healthy young shoots well aboveground, and I have no doubt there will be more, and each of these will be easily detached and will make a separate plant.—HENRY N. ELLACOMBE, *Bitton Vicarage.*

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Hedera Begueriana as a Low Pillar Plant.—I have this trained on a few sticks about 4 ft. high. It has completely hidden them, and now forms a low pillar of shield-like leaves—a fine-foliaged plant indeed.—J. J.

A Climbing Hardy Asparagus.—It ought to be known to those interested in hardy plants that there are one or two climbing, hardy species of Asparagus which are quite hardy and would form graceful objects on lawns.—V.

Scilla verna in Ireland.—Visitors to Howth, Ireland's Eye, and Lambay at this season cannot fail to be impressed with the patches of this beautiful little wildling which enamel the bare turf which carpets the cliffs. The Vernal Squill is also found in the islets and cliffs on the south side of the bay, but not so plentifully.—"Irish Farmers' Gazette."

Saxifraga virginiana fl. pl.—A prettier plant in this way than this double-flowered wild Saxifrage we have never seen. It was discovered by Mr. Joseph S. Adam, in Canaan, Connecticut, and is a perfectly spontaneous production, first noticed as a single plant, but is now multiplied into two or three, one of which is given to the Cambridge Botanical Garden. It is a tall specimen for the species; the stalk bearing seventy to eighty flowers; and each one bears as many petals, in a full rosette, ¼ in. in diameter, pure white. The inflorescence has the look of double-flowered Spiraea filipendula, or of a variety of Cardamine pratensis, which used to be in the gardens. The calyx is unchanged, an imperfect pistil is occasionally found in the centre; but the rest of the flower consist of petals only, in many ranks. We trust it may be preserved in cultivation.—A. GRAY, in "American Naturalist."

Some Plants that have Withstood the Winter.—The following plants have all been wintered in the open ground without any protection:—

Dracena australis	E. paniculatum	Echeandra ternifolia
Abutilon Thompsoni	Libonia floribunda	Phalangium nepalense
Canna Aehiras	Deeringia celosoides variegata	Bomarea Culdasiensis
Trachelospermum jasminoides	Leptospermum lanigerum	Fuchsia splendens
Amarylhis Ackermannii	Hypericum tomentosum	Agapanthus umbellatus
Aster argophyllus	H. hyssopifolium	Primula sikkimensis
Calistemon linearis	Podocarpus chilensis	Agave braehystachya
C. lanceolatus	Helianthemum Fumana	Richardia albo-maculata
C. viridiflorus	Mesembryanthemum uncinatum	Ceterach areurum
Choiisia ternata	Lapageria rosea	Struthiopteris japonica
Amiopia zygomeris	Trachelium coeruleum	Dicksonia antarctica
Gardenia ovata	Matisia Clematis	Athyrium Goringianum
Carmichaelia australis	Tecoma mirabilis	pictum
Eryngium serrata		

—H. N. ELLACOMBE, *Bitton Vicarage, Gloucestershire*, in "Gardeners' Chronicle."

THE KITCHEN GARDEN.

BRUSSELS SPROUTS AND THEIR CULTURE.

THE BRUSSELS SPROUT was at one time thought to be too tender to withstand severe winters, but it has been proved that it is quite as hardy, if not more so, than any other variety of the Brassica tribe. As a rule Brussels Sprouts are only cultivated in private establishments and market gardens, although they well deserve a place in every garden, however small. With a little skill and forethought they may in warm districts be got ready for supplying the table with an excellent vegetable from September till April. In many places the common rule is to sow one good batch in March or April, and let that serve all purposes; where, however, a long supply is desired, this is decidedly a mistake, inasmuch as the Sprouts ought to be made use of as soon as they are ready, otherwise they burst, and are consequently useless. It is therefore obvious that successional sowings should be made to keep up a constant supply. Sowings for early crops are sometimes made in October, and the produce transplanted in the spring, but there are objections to this practice, inasmuch as the plants become stunted, their stalks bent and unshapely during the winter, and when put out they do not grow away with that vigour usually found in spring-sown plants. Plants from this sowing are also liable to run to seed, especially if, after they are up in autumn, the weather be mild and they make free growth before winter sets in. For early crops the best plan is to sow a pinch of seed in a shallow box, well drained, early in January, and place it in a pit or frame where the temperature varies from 40° to 45°. The plants will soon be up, and should be kept close to the glass until they are large enough to handle, when they should be pricked off into other boxes, or out into a bed in a frame. Plenty of air must be admitted to them after they have commenced to grow, and if the weather be favourable in the middle of March they may be planted out-of-doors, on the warmest border that can be spared for them. If the plants be taken up with a good ball of earth, and planted during showery weather, they will grow without a check, and a crop of fine large Sprouts in September will be the result. The first sowing out-of-doors should be made in February or March, the main sowing early in April, and if later supplies be required a small sowing may be made in May or June. When the plants are large enough to be conveniently handled, they should be pricked out in rows into narrow beds or borders 5 in. or 6 in. apart, or more if practicable. The distance asunder for the final planting must in some measure be governed by the space at disposal; but in any case there is nothing gained by overcrowding. Plants for the main crop should be planted at least 2 ft. apart each way, but if 3 ft. can be allowed between the rows all the better. If extra fine Sprouts be desired, 3 ft. from plant to plant each way must be allowed. For early and late plantations it is not necessary to allow quite so much space as for the main crop. There are several varieties of Brussels Sprouts named in seedsmen's catalogues, but it is doubtful if they be really distinct. No doubt much has, and may still be done to improve the Brussels Sprout by persistently carrying out a system of selecting seed from the best and most prolific plants only, and there are few vegetables that will better repay any extra care or trouble incurred in carrying this matter out in a thoroughly practical manner. The best way is to get a good sort and to save one's own seed from the best plants. In the north Brussels Sprouts cannot be had in season so long as in southern districts, but they are oftener grown more finely. The varieties that are considered the best are Imported Brussels, Scrymger's Giant, Dalkeith, Roseberry, and Albert Sprouts.

Brussels Sprouts will succeed in almost any kind of soil, provided it be well and deeply cultivated, and fairly manured. Poor sandy soil will require a heavy dressing of good manure whilst lime and burnt clay may be beneficially applied to cold clayey land, just previous to planting, in preference to rank manure, which would have a tendency to produce gross open Sprouts instead of the close, medium-sized buttons that are so much appreciated. Frequent stirrings of the soil, general clean culture, and removing decaying leaves, add to their growth and cleanly appearance, and ought to receive attention.

As regards earthing up the stems, there has been much dispute as to the merits and demerits of the practice, but I have seen them grown both with and without that assistance, with much about the same result. In exposed places, however, earthing up is certainly to be recommended, in order to enable them to resist the force of the wind; but, as Brussels Sprouts, unlike Cabbage or Broccoli, bear all up the stems, it is not desirable to bury them to any great depth beyond giving them necessary support. The Cabbage-like heart should not be cut off from the centre of the plant until the crop is fit for gathering. The London market gardeners prefer, as a rule, stems of medium length, from which they think they get the hardest and best sprouts; with them, however, Brussels Sprouts are chiefly grown as catch crops. Good soakings of manure water, given to Brussels Sprouts during dry weather, will help to keep them in a vigorous and healthy growing state. In gathering, Brussels Sprouts are frequently broken from the stems of the plants, and sometimes with a portion of the stem adhering to them; but this is a mistake, inasmuch as it destroys the second crop of young Sprouts. A sharp knife should always be employed to cut off the Sprouts, leaving as much spur as possible without impairing the size of the Sprout. The largest and hardest should always be gathered first, in case they should burst, and consequently become spoiled. S.

CULTURE OF SPINACH.

AS FAR back as the year 1351 we find Spinach included among different vegetables consumed by the monks on fast days. It has been in common cultivation in England for more than 300 years, and, according to one authority, it was prepared for table at that period much the same as at present. Spinach is a wholesome vegetable, and if it required more skill in its cultivation no doubt it would be more highly appreciated. On poor soils in dry seasons it is, however, somewhat difficult to manage, and even the winter crops canker and decay; in fact, in some gardens the winter crop is often the cause of much anxiety. On good soils, however, Spinach will grow freely, and in a moist season in particular will yield abundantly. For the summer and autumn crops the ground cannot well be made too rich nor dug too deeply, and then it attains a high degree of succulency, but for the winter produce it is not necessary for the land to be made so rich. It is possible to fall into the same error in selecting the situation for Spinach to stand the winter as it is in choosing the site for Broccoli. Instead of selecting warm and sheltered nooks, and land heavily manured, it should rather be on an exposed aspect, one that is swept by the autumn breezes, that have a hardening influence, and the ground should be moderately rich. When plants have been grown tenderly and produce large, succulent foliage, they are not in such good condition for withstanding the vicissitudes of winter as they otherwise would be. In the confinement of a walled-in kitchen garden, with a very rich soil, Spinach will not stand the winter so well as when planted in a more exposed situation, and in only a moderately rich soil. In the highly-manured soil of a kitchen garden the growth is too succulent and tender, and on the first appearance of frost the plants are laid prostrate. Those produced in more exposed positions, though they do not develop into so much bulk, make a more sturdy growth, which is better able to withstand the winter.

We have two sorts of Spinach in general cultivation—the Round and the Prickly. The leaves of the latter are arrow-shaped and rough, and of the former round and smooth. The Round-leaved grows the fastest, is the largest and most succulent, and, therefore, is the sort used for the summer and autumn supply; the other being much more hardy, is grown to supply the table during winter and early spring. We begin to sow the Round Spinach as early in the new year as the weather will permit, and successional sowings of the same sort should be made until the end of July. Two or three sowings of the Rough-leaved, or Prickly-seeded, should be sown during August; and lest the autumn should be very fine and mild, it is the safest plan to make another sowing or two early in September. When the seed is sown too early, the plants get too forward, and are sure to perish during winter. The seed should be sown in drills about 1 in. deep, and the rows should be 14 in. apart. The best position for summer Spinach is

between rows of Peas or Broad Beans. The Peas and Beans need not be sown any wider than ordinarily to accommodate the Spinach, as the latter will be off the ground before it interferes with them. When Spinach is growing between two rows of Peas, and it is no longer required for use, the best plan is to pull it up, and use it as a mulching for the Peas. The seed should be sown thinly, and if the plants come up too thickly they should be thinned before they get crowded. I grow them till the leaves are 2 in. long, and then the thinnings are useful. I sow part of the winter crop on ground that has been occupied with Broad Beans or Peas, and the other part I sow in an exposed situation outside the kitchen garden proper. If the ground have been well manured for the previous crop, it will not be necessary to add any for the Spinach. This crop, for which the ground should be well dug, must of necessity be sown in rows 1 ft. apart. The winter crop sometimes proves a failure, which may be attributed to two or three causes. It is a common error to sow the seed too thickly, and to allow the plants to stand too crowded till they spoil each other. When the thinning is delayed too long, the mutual shelter which they afford each other is taken away, and the plants that are to form the permanent crop are checked in their development. When the plants are not thinned early they had better not be thinned at all, and the cultivator, if he begrudges the labour of thinning, had better sow thinly in the first place. Sometimes water stands about the plants without being able to drain away; this often causes decay, and leaves blanks in the bed; hence the necessity of the ground being well broken up, and the surface kept loose and open. Spinach has not yet become a popular vegetable with cottagers, but when properly cooked and served up it is well worth attention. K. R.

Early Peas.—These, like all other vegetables, are later this year than usual. We commenced gathering Ringleader from a south border on June 20; they were started in pots, and planted out when about 3 in. or 4 in. high, on March 14. On the same day we sowed on the same border The Shah, William the First, and Kentish Invicta; The Shah and Invicta were fit to gather on the 22nd inst., and William the First on the 23rd inst.; there was thus very little time gained by early sowing, even with the assistance of glass to start them, but this has been an exceptional season. Usually we gain a week by starting them in pots in gentle heat, and planting them out about the first or second week in March. The long period of cold nights and days during March, April, and May, retarded the growth of the early crop, and enabled those that were sown later to closely compete with them. There is a much greater difference between early Potatoes planted at various times. The Potatoes in our first early borders are all dug; in fact, the skins of the last taken up on the 23rd inst. were assuming a ripe tinge and firmness, but those on succession borders, although warmly situated, are scarcely yet fit to dig. The first lot were of course protected with straw mats during the cold weather that prevailed during the spring, and had in addition a warm, sunny spot.—E. HOBDDAY.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Two Good Cucumbers.—We have some pits planted with alternate plants of Telegraph and Hedsor Prolific, and it would be difficult to say which is best; they set two or three fruits at each joint, and, as they average from 15 in. to 18 in. long, they are even more serviceable than those that reach 2½ ft. to 3 ft. I have in former years grown some of these long sorts, but for the future I shall confine our stock to Telegraph and Hedsor only, as being kinds best suited for all seasons.—J. GROOM, *Henham*.

Birds, Insects, and Peas.—A correspondent of "Science Gossip," speaking of sparrows, which came in flocks and nipped off his Peas down to the petioles as soon as they had fairly shot above ground, was surprised to find that the better he succeeded in keeping off the birds the faster his Peas disappeared. This led him to investigate the matter more attentively, and he noticed that the young leaves were notched in a manner not at all likely to be the work of a bird's bill. Ultimately he discovered his real foes in the striped Pea weevil. The reputation of these pertinacious birds for destructiveness in this particular line is so well-established, that it might have been supposed they had come for the Peas, of which they are fond, and found an animal diet they liked better still. This does not appear to have been the case, however, for though the attention of the sparrows was afterwards encouraged, and measures taken which soon resulted in the total rout of the real enemy, the Peas were never afterwards injured. The writer says he has seen whole fields of Peas destroyed by this insect. Lime, soot, or finely powdered road dust, or all of them mixed together, dusted over the crops in early morning, while the dew lies upon them, he finds spoils the appetite of these pests, and if it does not absolutely destroy them, does what some people would perhaps prefer it should do—drives them away to neighbours' crops.

PLATE LXXX.

THE COLCHICUMS.

(WITH A COLOURED FIGURE OF *C. SPECIOSUM*).

Drawn by H. HYDE.

THE genus *Colchicum*, or Autumn Meadow Saffron, consists of hardy plants that flower in the autumn just when summer-blooming plants have lost their freshness, and when the days begin rapidly to shorten. Unlike many bulbous plants, their presence in the ground early in spring, when the borders are being prepared for summer-flowering plants, is not likely to be overlooked, for after the flowers have disappeared in autumn, we find no trace of them aboveground during the winter months, but amongst the earliest harbingers of spring appear the vigorous leaf-stems, bearing three or more leaves, and carrying with them the seed-pod or capsule, as shown in the subjoined woodcut. Last spring we were surprised by a seemingly unaccountable freak of Nature. We received early the previous autumn a case of bulbs of *Colchicum speciosum* from the Caucasus; they were immediately planted, but did not flower; however, in the spring the foliage appeared, and with it seed-capsules containing perfect seeds! We inquired of a well-known botanist—"Were the flowers in



Colchicum speciosum with Seed-pod.

the bulb-tunic abortive, and yet the ovaries fertilized? If not, whence the seed and its capsules?" His reply was as follows: "Perhaps the fertilization was effected by means of concealed abortive and inconspicuous flowers, as in the case of apetalous Violets." We presume, then, that this was the case with all, for all fruited; it only shows, in some cases at least, that the action of sunlight and insect agency as aids to fertilization are apparently not necessary. The species and varieties most worthy of cultivation are *C. autumnale*, the well-known British species, with its many varieties, varying in colour from deep purple, rosy-purple, and rose to pure white, while some forms are more or less striped with white; the same species has also several very beautiful double forms. *C. byzantinum* is a noble species, the petals of which are of good substance and very regular in outline—the whole flower most perfect in form. Of this species there is also a handsome form with variegated foliage, *C. variegatum*, and another very beautiful kind named *C. Parkinsoni*—the latter, which is referred to in *THE GARDEN*, Dec. 2, 1876, has the flowers chequered in a manner somewhat similar to *Fritillaria Meleagris*; this, no doubt, gave rise to the name tessellatum as applied to *C. variegatum*.

Lastly, we come to the subject of our plate, *C. speciosum*, which is probably the noblest plant of the family. It is



a native of the Caucasus, and it is also said to inhabit the provinces of Mingrelia, Iberia, the Suwant, Lenkoran, and the south-west shores of the Caspian Sea. Although this species varies a little in point of colouring, the annexed illustration in no way exaggerates the beauty of the plant or its size, but may be regarded as a good typical specimen; a few, however, are a little darker in colouring, but not sufficiently distinct to be otherwise classified; like *C. byzantinum* it is exceedingly floriferous, as indeed are all the section more or less, each bulb throwing up many flowers. There are many other species of *Colchicum* well worthy of cultivation, but those just enumerated may be considered the best for decorative purposes.

As regards cultivation, all the species may be grown successfully in ordinary garden borders; but, to have them in perfection, choose a situation fully exposed to the sun, with the soil of a sandy character—in fact, such a spot as is likely to dry up during summer—here they will luxuriate, and enjoy the autumn, winter, and early spring rains. In such a situation *Iris iberica* also succeeds remarkably well.

Colchester.

FRED. HORSMAN.

A SIXTEENTH CENTURY SECATEUR.

SECATEURS are far from being very modern inventions. Here is the

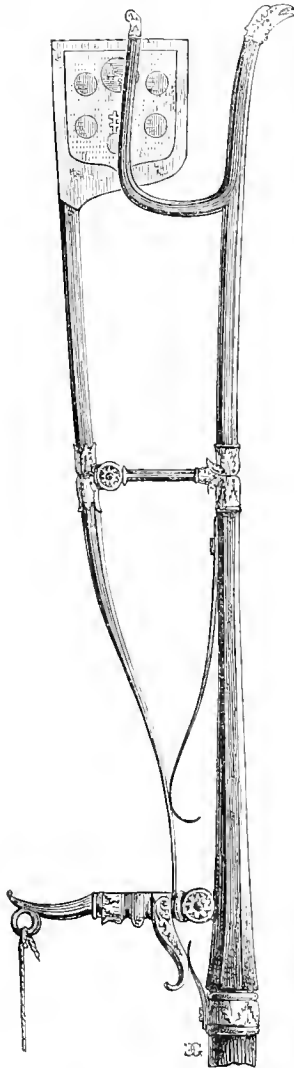


figure of a somewhat ornamental one, actually made in France in the sixteenth century; probably they are even of more ancient date. The use of well-formed leaden pipes, turbines, &c., to water the

gardens in Roman houses before the beginning of the Christian era rather detracts from one's wonder at various "recent improvements." Notwithstanding, however, the antiquity of the secateur, it has never become common in our gardens, the small and handy pruner's secateur has been, however, a good deal used in various English gardens of late years, and is found in its best forms to be a little implement that does its work well and saves time.

THE PLANT-LORE OF SHAKESPEARE.

(Continued from p. 527).

Pear.

- (1) *Falstaff*. I warrant they would whip me with their fine wits till I were as crestfallen as a dried Pear.
Merry Wives of Windsor, act iv., sc. 5.
- (2) *Parolles*. Your virginity, your old virginity, is like one of our French withered Pears, it looks ill, it eats drily; marry, 'tis a withered Pear; it was formerly better; marry, yet 'tis a withered Pear.
All's Well That Ends Well, act i., sc. 1.
- (3) *Clown*. I must have Saffron to colour the Warden pies.
Winter's Tale, act iv., sc. 2.
- (4) *Mercutio*. O, Romeo . . . thou a Popering Pear.
Romeo and Juliet, act ii., sc. 1.

If we may judge by these few notices, Shakespeare does not seem to have had much respect for the Pear, all the references to the fruit being more or less absurd or unpleasant. Yet there were good Pears in his day, and so many different kinds that Gerarde declined to tell them at length, for "the stocke or kindred of Pears are not to be numbered; every country hath his peculiar fruit, so that to describe them apart were to send an owle to Athens, or to number those things that are without number."

Of these many sorts Shakespeare mentions by name but two, the Warden and the Popering, and it is not possible to identify these with modern varieties with any certainty. The Warden was probably a general name for large keeping and stewing Pears, and the name was said to come from the Anglo-Saxon *wearden*, to keep or preserve, in allusion to its lasting qualities. In Parkinson's time the name was still in use, and he mentions two varieties, "The Warden or Lukewards Pear are of two sorts, both white and red, both great and small." (The name of Lukewards seems to point to St. Luke's Day, October 18, as perhaps the time either for picking the fruit or for its ripening). "The Spanish Warden is greater than either of both the former, and better also." And he further says, "The Red Warden and the Spanish Warden are reckoned amongst the most excellent of Pears, either to bake or to roast, for the sick or for the sound—and indeed the Quince and the Warden are the only two fruits that are permitted to the sick to eat at any time."

I can find no guide to the identification of the Popering Pear, beyond Parkinson's description—"The summer Popperin and the winter Popperin, both of them very good, firm, dry Pears, somewhat spotted and brownish on the outside. The green Popperin is a winter fruit of equal goodnesse with the former." It was probably a Flemish Pear, and may have been introduced by the antiquary Leland, who was made Rector of Popering by Henry VIII. The place is further known to us as mentioned by Chaucer:—

A knyght was fair and gent
In batail and in tornament,
His name was Sir Thopas.
Alone he was in fer contre,
In Flaundes, al beyonde the se,
At Popering in the place.

As a garden tree the Pear is not only to be grown for its fruit, but as a most ornamental tree. Though the individual flowers are not, perhaps, so handsome as the Apple blossoms, yet the growth of the tree is far more elegant; and an old Pear tree, with its curiously roughened bark, its upright, tall, pyramidal shape, and its sheet of snow-white blossoms, is a lovely ornament in the old gardens and lawns of many of our country houses. It is now considered a British tree, but it is probably only a naturalized foreigner, originally introduced by the Romans.

Peas.

- (1) *Iris*. Ceres, thou bounteous lady! thy rich leas
Of Wheat, Rye, Barley, Vetches, Oats, and Peas.
Tempest, act iv., sc. 1.
- (2) *Carrier*. Pease and Beans are as dank here as a dog,
1st Henry IV., act ii., sc. 1—(see Beans).
- (3) *Biron*. This fellow picks up wit, as pigeons Peas.
Love's Labour's Lost, act v., sc. 2.
- (4) *Bottom*. I had rather have a handful or two of dried Peas.
Midsommer Night's Dream, act iv., sc. 1.
- (5) *Fool*. That a shelled Peascod?
King Lear, act i., sc. 4.
- (6) *Touchstone*. I remember the wooing of a Peascod instead of her.
As You Like It, act ii., sc. 1.
- (7) *Molechio*. Not yet old enough to be a man, nor young enough for a
boy, as a Squash is before 'tis a Peascod, or a Codling when 'tis
almost an Apple.
Twelfth Night, act i., sc. 5.
- (8) *Hostess*. Well, fare thee well! I have known thee these twenty-five
years come Peascod time.
2nd Henry IV., act ii., sc. 4.
- (9) *Leontes*. How like, methought, I then was to this kernel, this
Squash, this gentleman.
Winter's Tale, act i., sc. 2.
- (10) *Peascod, Pease Blossom, and Squash*—dramatis personæ in *Mid-
summer Night's Dream*.

There is no need to say much of Peas, but it may be worth a note in passing that in Old English we seldom meet with the word Pea. The singular name is Peas or Pease, of which the plural is Peason. The Squash is the young Pea, before the Peas are formed in it, and the Peascod is the ripe shell of the Pea before it is shelled. The garden Pea (*Pisum sativum*) is the cultivated form of a plant found in the south of Europe, but very much altered by cultivation. It was probably not introduced into England as a garden vegetable long before Shakespeare's time. It is not mentioned in the old lists of plants before the sixteenth century, and Fuller tells us that in Queen Elizabeth's time they were brought from Holland, and were "fit dainties for ladies, they came so far, and cost so dear."

The beautiful ornamental Peas (Sweet Peas, Everlasting Peas, &c.), are of a different family (*Lathyrus*, not *Pisum*), but very closely allied. There is a curious amount of folklore connected with Peas, and in every case the Peas and Peascods are connected with wooing the lasses. This explains *Touchstone's* speech (No. 6). Braud gives several instances of this, from which one stanza from "Browne's Pastorals" may be quoted:

The Peascod greene, oft with no little toyle,
He'd seek for in the fattest, fertil'st soile,
And end it from the stalke to bring it to her,
And in her bosom for acceptance wooe her.

Peony (see Piony).

Pepper.

Pepper and Peppercorns are mentioned in Shakespeare, but, like Mustard, only as the condiment, and with no reference to the plant, which in Shakespeare's time was only known in England from foreign descriptions, and from fragments of the tree sent home as curiosities.

Pig-nuts.

Caliban. I prythee let me bring thee where crabs grow, and I with my long nails will dig thee Pig-nuts.

Tempest, act ii., sc. 2.

Pig-nuts or Earth-nuts are the tuberous roots of *Couopodium denudatum* (*Bunium flexuosum*), a common weed in old upland pastures; it is found also in woods. This root is really of a pleasant flavour when first eaten, but leaves an unpleasant taste in the mouth. It is said to be much improved by roasting, and to be then quite equal to Chestnuts. Yet it is not much prized in England except by pigs and children, who do not mind the trouble of digging for it. But the root lies deep, and the stalk above it is very brittle, and "when the little 'howker' breaks the white shank he at once desists from his attempt to reach the root, for he believes that it will elude his search by sinking deeper and deeper into the ground" (John-

stone). I have never heard of its being cultivated in England, but it is cultivated in some European countries, and much prized as a wholesome and palatable root.

Pine.

- (1) *Prospero*. She did confine thee,
Into a cloven Pine;
It was mine art,
When I arrived and heard thee, that made gape
The Pine and let thee out.
Tempest, act i., sc. 2.
- (2) *Suffolk*. Thus droops this lofty Pine and hangs his sprays.
2nd Henry VI., act ii., sc. 3.
- (3) *Prospero*. And by the spurs plucked up
The Pine and Cedar.
Tempest, act v., sc. 1.
- (4) *Agamemnon*. As knots, by the conflux of meeting sap,
Infect the sound Pine, and divert his grain
Tortive and errant from his course of growth.
Troilus and Cressida, act i., sc. 3.
- (5) *Antony*. Where yonder Pine doth stand
I shall discover all.
This Pine is backed
That overtopped them all.
Antony and Cleopatra, act i., sc. 3.
- (6) *Belarius*. As the rudest wind
That by the top doth take the mountain Pine,
And make him stoop to the vale.
Cymbeline, act iv., sc. 2.
- (7) *1st Lord*. Behind the tuft of Pines I met them.
Winter's Tale, act ii., sc. 1.
- (8) *Richard*. But when from under this terrestrial ball
He fires the proud top of the eastern Pines.
Richard II., act iii., sc. 2.

The Pine is the established emblem of everything that is "high and lifted up," but always with a suggestion of dreariness and solitude. So it is used by Shakespeare and by Milton, who always associated the Pine with mountains; and so it has always been used by the poets, even down to our own day. Thus Tennyson—

They came, they cut away my tallest Pines—
My dark tall Pines, that plumed the craggy ledge—
High o'er the blue gorge, and all between
The snowy peak and snow-white cataract
Fostered the callow eaglet, from beneath
Whose thick mysterious boughs in the dark morn
The panther's roar came muffled while I sat
Down in the valley.

Complaint of Ænon.

Sir Walter Scott similarly describes the tree in the pretty and well-known lines—

Aloft the Ash and warrior Oak
Cast anchor in the rifted rock;
And higher yet the Pine tree hung
His shattered trunk, and frequent flung,
Where seemed the cliffs to meet on high,
His boughs athwart the narrow sky.

Yet the Pine which was best known to Shakespeare, and perhaps the only Pine he knew, was the *Pinus sylvestris*, or Scotch Fir, and this, though flourishing on the highest hills where nothing else will flourish, certainly attains its fullest beauty in sheltered lowland districts. There are probably much finer Scotch Firs in Devonshire than can be found in Scotland. This is the only indigenous Fir, though the *Pinus Pinaster* claims to be a native of Ireland, some cones having been supposed to be found in the bogs, but the claim is not generally allowed—there is no proof of the discovery of the cones; and yet it has become so completely naturalized on the coast of Dorsetshire, especially about Bournemouth, that it has been admitted into the last edition of Sowerby's "English Botany."

But though the Scotch Fir is a true native, and was probably much more abundant in England formerly than it is now, the tree has no genuine English name, and apparently never had. Pine comes directly and without change from the Latin, *Pinus*, as one of the chief products, pitch, comes directly from the

Latii, pin. In the early vocabularies it is called "Pin-treow," and the cones are "Pin-nutties." We also find "Fyre-tree," which is a true English word meaning the "Fire-tree;" but I believe that "Fir" was originally confined to the wood, from its large use for torches, and was not till later years applied to the living tree.

The sweetness of the Pine seeds, joined to the difficulty of extracting them, and the length of time necessary for their ripening, did not escape the notice of the emblem-writers of the sixteenth and seventeenth centuries. With them it was the favourite emblem of the happy results of persevering labour. Camerarius, a cotemporary of Shakespeare and a great botanist, gives a pretty plate of a man holding a Fir-cone, with this moral—"Sic ad virtutem et honestatem et laudabiles actiones non nisi per labores ac varias difficultates perveniri potest, at postea sequuntur suavissimi fructus." He acknowledges his obligation for this moral to the proverb of Plautus—"Qui e nucce nucleum esse vult, frangat nucem."—"Symbolorum," &c., 1590).

In Shakespeare's time a few of the European Conifers were grown in England, including the Larch, but only as curiosities. The very large number of species which now ornament our gardens and Pineta from America and Japan were quite unknown. The many uses of the Pine—for its timber, production of pitch, tar, resin, and turpentine—were well known and valued. Shakespeare mentions both pitch and tar.

Piony.

Iris. Thy banks with Pionied and Lilled brims,
Which spongy April at thy best betrimms,
To make cold nymphs chaste crowns.

Tempest, act iv., sc. 1.

There is much dispute about this passage, the dispute turning on the question whether "Pionied" has reference to the Peony flower. The word by some is supposed to mean only "digged," and it doubtless often had this meaning, though the word is now obsolete, and only survives with us in "pioneer." But this reading seems very tame, tame in itself, and doubly tame when taken in connection with the Lilies and the "nymphs' chaste crowns." I shall assume, therefore, that the flower is meant, spelt in its old form of "Piony," instead of Peony or Pæony.

The Pæony (*P. corallina*) is sometimes allowed a place in the British flora, having been found apparently wild at the Steep Holmes in the Bristol Channel and a few other places, but it is now considered certain that in all these places it is a garden escape. Gerarde gave one such habitat:—"The male Peonie groweth wilde upon a Coneyberry in Betsome, being in the parish of Southfleet, in Kent, two miles from Gravesend, and in the ground sometimes belonging to a farmer there, called John Bradley;" but on this his editor adds the damaging note—"I have been told that our author himself planted that Peionee there, and afterwards seemed to find it there by accident; and I do beleevve it was so, because none before or since have ever seen or heard of it growing wild since in any part of this kingdome."

But, though not a native plant, it had been cultivated in England long before Shakespeare's and Gerarde's time. It occurs in most of the old vocabularies from the tenth century downwards, and in Shakespeare's time the English gardens had most of the European species that are now grown, including also the handsome double-red and white varieties. Since his time the number of species and varieties has been largely increased by the addition of the Chinese and Japanese species, and by the labours of the French nurserymen, who have paid more attention to the flower than the English.

In the hardy flower garden there is no more showy family than the Pæony. They have flowers of many colours, from almost pure white and pale yellow to the richest crimson, and they vary very much in their foliage, most of them having large fleshy leaves, "not much unlike the leaves of the Walnut tree," but some of them having their leaves finely cut and divided, almost like the leaves of Fennel (*P. tenuifolia*). They further vary in that some are herbaceous, disappearing entirely in winter, while others, Moutan or Tree Pæonies, are shrubs; and in favourable seasons, when the shrub is not

injured by spring frosts, there is no grander shrub than an old Tree Pæony in full flower.

Of the many different species the best are the Moutans, which, according to Chinese tradition, have been grown in China for 1500 years, and which are now produced in great variety of colour; *P. corallina*, for the beauty of its coral-like seeds; *P. cretica*, for its earliness in flowering; *P. tennifolia*, single and double, for its elegant foliage; *P. Whitmaniana*, for its pale yellow, but very fleeting flowers, which, before they are fully expanded, have all the appearance of immense Globe-flowers (*Trollius*); *P. lobata*, for the wonderful richness of its bright crimson flowers; and *P. Whiteji*, a very old and very double form of *P. edulis*, of great size, and most delicate pink and white colour.

Pippin (see Apple).

Plantain.

- (1) *Costard.* O sir, a Plantain, a Plantain, a plain Plantain, no l'envoy, no l'envoy, no salve, sir, but a Plantain.
Moth. By saying that a costard was broken in a shin
Then called you for the l'envoy.
Costard. True! and I for a Plantain.
Love's Labour's Lost, act iii., sc. 1.
- (2) *Romeo.* Your Plantain leaf is excellent for that.
Benvolio. For what, I pray thee?
Romeo. For a broken shin.
Romeo and Juliet, act i., sc. 2.
- (3) *Troilus.* As true as steel, as Plantage to the moon.
Troilus and Cressida, act iii., sc. 2.

The most common old names for the Plantain were Waybread (corrupted to Weybread, Wayborn, and Wayfern), and Ribwort. It was also called Lamb's-tongue and Kemps, while the flower-spike with the stalk was called Cocks and Cockfighters (still so called by children). The old name of Ribwort was derived from the ribbed leaves, while Waybread marked its universal appearance, scattered by all roadsides and pathways, and literally bred by the wayside. It has a similar name in German, *Vegetritt*, that is, *Waytread*; and on this account the Swedes name the plant *Wagbredblad*, and the Indians of North America *Whiteman's Foot*, for it springs up near every settlement the colonists make, having sprung up after the English settlers not only in America, but also in Australia and New Zealand:—

Wheresoe'er they move before them
Swarms the stinging fly, the Ahmo,
Swarms the bee, the honey-maker:
Wheresoe'er they tread, beneath them
Springs a flower unknown among us,
Springs the "White man's foot" in blossom.

Longfellow's Hiawatha.

And "so it is a mistake to say that Plantain is derived from the likeness of the plant to the sole of the foot, as in Richardson's Dictionary. Rather say, because the herb grows under the sole of the foot"—(Johnstone). How, or when, or why the plant lost its old English names to take the Latin name of Plantain, it is hard to say. It occurs in a vocabulary of the names of plants of the middle of the thirteenth century—"Planago, Plantheime, Weibrede," and apparently came to us from the French, "*Cy est assets de Planteyne, Weybrede.*" (Walter de Biblesworth, thirteenth century.) But I believe Shakespeare is almost the earliest writer that uses the name, though it is very certain that he did not invent it; but "Plantage" (No. 3), which is doubtless the same plant, is peculiar to him.

It was as a medical herb that our forefathers chiefly valued the Plantain, and for medical purposes its reputation was of the very highest. In a book of recipes (*Lacnunga*) of the eleventh century, by Alfric, is an address to the Waybread, which is worth extracting at length:—

And thou, Waybread!
Mother of worts,
Open from eastward,
Mighty within;
Over thee carts creaked,
Over thee Queens rode,
Over thee brides bridalled,
Over thee bulls breathed,
All these thou withstood'st
Venom and vile things
And all the loathly ones
That through the land rove.

(*Cockayne's Translation*).

In another earlier recipe book the Waybread is prescribed for twenty-two diseases, one after another; and in another of the same date we are taught how to apply it:—"If a man ache in half his head . . . delve up Waybread without iron ere the rising of the sun, bind the roots about the head with Crosswort by a red fillet, soon he will be well." But the Plantain did not long sustain its high reputation, which, even in Shakespeare's time had become much diminished. "I find," says Gerarde, "in ancient writers many good-morrowes, which I think not meet to bring into your memorie againe; as that three roots will cure one griefe, four another disease, six hanged about the neck are good for another maladie, &c., all which are but ridiculous toys." Yet the bruised leaves still have some reputation as a styptic and healing plaster among country herbalists, and perhaps the alleged virtues are not altogether fanciful.

As a garden plant, the Plantain can only be regarded as a weed and nuisance, especially on lawns, where it is very difficult to destroy them. Yet there are some curious varieties which may claim a corner where botanical curiosities are grown. The Plantain seem to have a peculiar tendency to run into abnormal forms, many of which will be found described and figured in Dr. Masters' "Vegetable Teratology," and among these forms are two which are exactly like a double green Rose, and have been cultivated as the Rose Plantain for many years. They were grown by Gerarde, who speaks of "the beauty which is in the plant," and compared it to "a fine double Rose of a hoary or rusty greene colour." Parkinson also grew it and valued it highly.

Plums, with Damsons and Prunes.

- (1) *Constance*. Give grandam kingdom, and it grandam will give it a Plum, a Cherry, and a Fig.
King John, act ii., sc. 1.
- (2) *Hamlet*. The satirical rogue saith that old men have grey beards, their faces are wrinkled, their eyes purging thick amber and Plumb-tree gum.
Hamlet, act ii., sc. 2.
- (3) *Simpcoor*. A fall off a tree.
Wife. A Plum tree, master.
Glooucester. Marry, thou lovest Plums well that wouldest venture so.
Simpcoor. Alas! good master, my wife desired some Damsons, and made me climb, with danger of my life.
2nd Henry VI., act ii., sc. 1.
- (4) *Evans*. I will dance and eat Plums at your wedding.
Merry Wives of Windsor, act v., sc. 5.
- (5) The mellow Plum doth fall, the green sticks fast,
Or being early plucked is sour to taste.
Venus and Adonis.
- (6) Like a green Plum that hangs upon a tree,
And falls through wind before the fall should be.
Passionate Pilgrim.
- (7) *Slender*. Three veneys for a dish of stewed Prunes.
Merry Wives of Windsor, act i., sc. 1.
- (8) *Falstaff*. There's no more faith in thee than in a stewed Plum.
1st Henry IV., act iii., sc. 3.
- (9) *Clown*. Longing (saying your honour's presence) for stewed Prunes.
And longing, as I said, for Prunes.
You being then, if you be remembered, cracking the stones
of the said Prunes.
Measure for Measure, act ii., sc. 1.
- (10) *Clown*. Four pounds of Prunes, and as many of Raisins of the sun.
Winter's Tale, act iv., sc. 2.
- (11) *Falstaff*. Hang him, rogue; he lives upon mouldy stewed Prunes and dried cakes.
2nd Henry IV., act ii., sc. 4.

Plums, Damsons, and Prunes may conveniently be joined together, Plums and Damsons being oftener used synonymously (as in No. 3), and Prunes being the dried Plums. The Damsons were originally, no doubt, a good variety from the East, and nominally from Damascus. They seem to have been considered great delicacies, as in a curious allegorical drama of the fifteenth century, called "La Nef de Sante," of which an account is given by Mr. Wright:—"Bonne-Compagnie, to begin the day, orders a collation, at which, among other things, are served Damsons (Prunes de Damas), which appear at this time to

have been considered as delicacies. There is here a marginal direction to the purport that if the morality should be performed in the season when real Damsons could not be had, the performers must have some made of wax to look like real ones."—"History of Domestic Manners," &c.). The garden Plums are a good cultivated variety of our own wild Sloe, but a variety that did not originate in England, and may very probably have been introduced by the Romans. The Sloe and Bullace are, speaking botanically, two sub-species of *Pyrus communis*, while the Plum is a third sub-species (*P. communis domestica*). The garden Plum is occasionally found wild in England, but is certainly not indigenous. It is somewhat strange that our wild plant is not mentioned by Shakespeare under any of its well-known names of Sloe, Bullace, and Blackthorn. Not only is it a shrub of very marked appearance in our hedgerows in early spring, when it is covered with its pure white blossoms, but Blackthorn staves were indispensable in the rough game of quarterstaff, and the Sloe gave point to more than one English proverb: "as black as a Sloe," was a very common comparison, and "as useless as a Sloe," or "not worth a Sloe," was as common.

Sir Amys answered, tho'
"I give thee thereof not one Sloe!
Do right all that thou may!"

Amys and Amyllion—Ellis's Romances.

Though even as a fruit the Sloe had its value, and was not altogether despised by our ancestors, for thus Tusser advises—

By the end of October go gather up Sloes,
Have thou in readiness plenty of those;
And keep them in bed-straw, or still on the bough,
To stay both the flux of thyself and thy cow.

As soon as the garden Plum was introduced, great attention seems to have been paid to it, and the gardeners of Shakespeare's time could probably show as good Plums as we can now. "To write of Plums particularly," said Gerarde, "would require a peculiar volume. . . . Every clymate hath his owne fruite, far different from that of other countries; my selfe have threescore sorts in my garden, and all strange and rare; there be in other places many more common, and yet yearly commeth to our hands others not before knowne."
H. N. ELLACOMBE.

(To be continued).

Cats and Small Birds.—We often hear the small birds, and not least the tits, spoken of as enemies in our gardens, but little seems to be thought of the many enemies with which they have to contend. Having a fair amount of shrubbery, with more than an average of small birds' nests, I can safely say that in scarcely more than one in ten are the young birds reared, and this in a quiet, retired country village. Cats are their greatest enemies, and are alike destructive to eggs and young birds. A few weeks ago I went in the kitchen garden to an iron pump, which had not been used during the winter; before pumping I by chance lifted the top, which was not screwed down, and found a greater tit (*Parus major*) had set up house there. The whole circumference of the pump top, about 5 in. in diameter, was filled, the edge of the nest being just level with the bottom of the spout opening, and the bird went in and out by the spout. She was sitting upon five eggs, and in due time they were hatched. A few days after I saw my cat sitting on the pump stone under the spout, evidently intently watching, and my man told me it had already succeeded in getting one of the young birds out of the nest by standing on its hind legs and putting its fore-leg up the spout. I afterwards measured the distance it had to reach; from pump stone to mouth of spout, 2 ft. 1 in.; length of spout from mouth to edge of nest, 10 in.; depth of cup of nest, 2½ in. I took the cat away and shut it up (and kept it so), there being then four young healthy birds in the nest, but it was all in vain. Other cats must have found the nest and exercised their skill, for a day or two after only three birds were left, a few days later one, and then that vanished also, so that within ten or twelve days of hatching the poor tits had lost all their brood; and the case has been the same with the shrubbery nests, except that usually they have been destroyed before hatching. To find torn nests with a few fragments of egg shell has been the rule with about nine out of ten. If we depended on our gardens and shrubberies for the supply of our small birds, I think we should soon be very short of them.—E. C.

PARMENTIER.

PARMENTIER, who was born in 1737, was the introducer of the Potato into France, but after it was introduced he had great trouble in overcoming the prejudices that existed against it. Its cultivation was thought to injure the land, and its use as food to generate disease; even as late as 1814 no more disrespectful name could be applied to any one than that of Potato eater. The Academy of Besauçon having offered a prize for that esculent which would be most likely to mitigate poverty, the Potato was selected as best calculated to avert that evil. This gave Parmentier fresh courage, still he felt that nothing short of positive facts and unquestionable experience could remove

success; to Parmentier therefore is due the credit not only of introducing, but of making the Potato popular in France, where, after Corn, it forms the most useful article of food.

M. L.

Radishes in Japan.—The "Scientific Farmer" publishes a letter from President Clark, now in charge of the Japanese Agricultural College, in the course of which he makes a statement as regards the Radish which we have never seen elsewhere. It is as follows:— "It is astonishing to see how the Japanese cook a great variety of nutritious dishes without milk, butter, or fat of any sort, or even sugar. They seem to make Peas and Beans furnish their albuminoids,



Parmentier, the Introducer of the Potato into France.

the prejudice which existed against it; he therefore published an analysis of the Potato, and to prove practically with what facility Potatoes could be cultivated, he planted 54 acres with them in the plain of Sablon, just outside Paris, a plain which had always been considered sterile. When the plants flowered he presented a bouquet of the blooms to Louis XVI., who was a great lover of the Potato, and who placed the flowers in his coat, a circumstance which did more than anything else to bring the Potato into notice. Nevertheless Parmentier employed other means, with the view of making it popular, one of which was as follows:—He invited all who were of acknowledged learning or otherwise influential to a dinner composed wholly of Potatoes, which were served up in all kinds of ways, and his perseverance was at last crowned with

and Rice their amyloids. Thus you perceive they use the Simon pure, original articles. The one vegetable which serves all purposes, and seems to be absolutely indispensable to every Japanese, whether high or low, is the Radish. They have developed it to gigantic proportions; the roots being often 3 ft. long and 3 in. in diameter. The colour is always white. They eat it raw with salt; they boil and serve it as we do Turnips; they pickle it in brine, tops and roots, and consume the (to us) uninviting result in vast quantities; they dry tops and roots and feed upon them; and, worst of all, they hang them on poles in the fields to freeze and thaw all winter, and then consider the shrivelled remains worth eating. I believe the Chinese use the Radish in a similar way, and it is undoubtedly specially suited, in its taste and effects, to the wants of Rice eaters."

What the Upas tree keeps deepest hold by—the top-root.—"Punch."

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Greenhouse Plants in Small Pots, that have their leaf-surface large in proportion to the amount of soil in which they are grown, will require constant attention as to water, of which a frequent supply, sufficient to saturate the whole of the soil, should be given, as they invariably suffer more from a scarcity of water than those plants whose foliage-surface is more limited.

Cinerarias and Primulas, sown some time ago, should, as soon as they are large enough to handle, be transferred to small pots, or they can be put $1\frac{1}{2}$ in. apart into large pans in fine soil made rich and loose by the addition of sifted leaf-mould and a little sand, remaining there only so long as they do not become overcrowded, after which insert them singly in 3-in. pots. Both Cinerarias and Primulas should be placed close to the glass, in an ordinary garden frame, at the north side of a wall or fence, where the sun will only reach them morning and evening; but they must have plenty of air, bearing in mind to keep always moist the bed of ashes on which they should stand. Primulas of the *Cortusoides* section, grown in pots, should be kept plunged through the summer in a bed of ashes on the north side of a wall, and well attended to with water, for, if at all neglected at this season, no subsequent attention can remedy the injury they will have sustained. *P. japonica* is not often seen in the condition in which it is capable of being produced, and through this cause has disappointed many. Instead of confining it to the small pots it is often flowered in, if the plants have more room (say 10-in. or 12-in. pots), be grown in good soil, and supplied with manure-water as often and as strong as a *Calceolaria* will bear, the appearance of both leaf and flower will be very materially improved.

Campanula pyramidalis is one of the best summer-flowering plants that amateurs can grow; they will now have made considerable progress, and will be much benefited by an application of manure water every week. Young plants raised from seed this spring should, as soon as ready, be pricked off into small pots and encouraged to make growth, for upon the strength they attain before autumn in a great measure depends their blooming capabilities during the ensuing year; when well managed they will make flower-stems 8 ft. or 10 ft. high.

Mignonette should now be sown in pots for winter flowering; this will not attain the size it would if sown a month or six weeks earlier, but for general decorative purposes it will be rather an advantage than otherwise, as a number of comparatively small plants, when well flowered, will in most cases be more useful than larger specimens. Take as many 4-in. pots as will be required, in the bottom of which put $\frac{1}{2}$ in. of drainage material, over this a little dry rotten manure, such as has been used for mulching, then fill up to within $\frac{1}{4}$ in. of the rim with good ordinary loam, to which has been added one-fifth of rotten manure and a little sand, pressing it firmly in the pots; on this sow the seeds (six or eight to each, ultimately thinning them down to half the number); place the pots as close as they will stand on a bed of ashes in a cold frame, keeping the lights off until autumn, unless the weather should be excessively wet.

Flower Garden.—Pay all requisite attention to bedding plants by giving them sufficient water as often as required, and in this way, so far as possible, endeavour to make up for the late, unsatisfactory condition they are in. In applying water in dry weather it is much better to give as much once or twice a week as will moisten the soil to a depth of 3 in. or 4 in., than to sprinkle the surface daily, which latter operation is far too generally practised, and tends to promote root-action near the top alone, leaving the lower and more important feeding fibres in almost a dormant condition.

Herbaceous Plants.—There are few hardy plants more general favourites than Pansies and Violas, especially the good old varieties of the former, with their beautiful, well-defined colours. In many of the kinds which have of late years made their appearance, and are known under the name of Fancy Pansies, the indescribable confusion in shades and colour renders them destitute of every property that constitutes a handsome flower. Instead of growing these, I should recommend amateurs to confine themselves to the purely-marked flowers, and if a small piece of ground on the north side of a wall (where the midday sun cannot reach them in sunny weather) be devoted to them, their flowers (so useful for cutting) may be had at this time, when there is much more difficulty in keeping them blooming than during the spring and later in the autumn. Another essential to secure a continuous supply of flowers is to strike plants sufficiently often; cuttings should be put in as soon as they can be obtained in the spring, again about the present time, and also in the

autumn; these should consist of young suckers that spring from the bottom and not flowering shoots, which root indifferently. They strike in a very short time if set 1 in. or 2 in. apart under hand-lights out-of-doors, kept moist, and shaded, in all stages of their growth. Pansies succeed best in moderately light soil made rich with leaf-mould, or any thoroughly decayed vegetable matter. One of the best cultivators I ever knew used to grow his in half loam added to an equal quantity of decomposed Potato haulm; in this compost they made amazing progress. For spring and autumn flowering, instead of a northern aspect they should have a more sunny position, and should never be allowed to flag for want of water, as their roots, being so near the surface, quickly get burnt up. The same treatment will in every way suit Violas, which differ but little from Pansies, only as being more floriferous, and the disposition of the best varieties to continue blooming more freely through the summer. Amateurs, who as a rule care more for a continuous moderate supply of flowers in their gardens than a bright mass for a short time with a dearth at others, will, during such seasons as the present, see the necessity of cultivating continuous-blooming subjects, such as Pansies and Violas, rather than depending too much upon ordinary bedding plants, which, even under the best management, are up to this time little more effective than if the beds had still been occupied by the small shrubs with which they are usually filled through the winter. In gardens where there are no pretensions to grow an extensive collection of herbaceous plants, but where, in addition to the above, are to be found the White Perennial Iberis, Anemones, Aquilegias, Arabis alba, Aubrietia purpurea, Daisies of kinds, Cheiranthus Marshalli, Dielytra spectabilis, Dodecatheons, Gentiana acaulis, Myosotis, Pentstemons, Primulas, Wallflowers, spring-flowering bulbs, &c., will have prevented the barren appearance that exists where but little besides summer bedding plants are cultivated. Should the present dry weather continue, where spring bedding plants are used to a considerable extent and now transferred to the reserve ground, they must be well attended to with water, as from their recent removal the roots will not yet have got full hold of the fresh soil; without sufficient moisture to sustain them they will make little progress through the summer, and upon this in a great measure depends their ability to bloom well in the beds assigned to them during the spring.

Walks.—Where salting walks for the destruction of weeds is resorted to, dry weather is much the best in which to apply it, salt dissolved in water is the most approved method, but it should be as near boiling heat as possible. There is one objection to salting walks, viz., that it gives to most kinds of gravel a dark, damp appearance; and if the value of the salt thus used were spent in labour in hand-picking before the weeds became numerous and were allowed to seed, it would be found the most economical. Through the difficulty of extracting weeds from a gravel walk when dry and hard, they are often allowed to remain until moistened by rain, during which time they may be maturing and scattering seeds by the thousand, whereas if a few pots of water be poured on with a rose-spouted can, a considerable space may be thus moistened in a very short time, and the work of weeding greatly facilitated, as a man will do as much in one hour with the walk in a moist condition as he will in three when dry.

Kitchen Garden.—Through the scarcity of Apples this spring, there has, in the London and other markets, been an extraordinary demand for Rhubarb, which has consequently realized a very high price, and from the same cause there is every likelihood of a recurrence of this state of things next spring. The yield of this useful plant is always proportionate to the strength of the roots; nothing tends to weaken them so much as long and continuous gathering, whereby the quantity of leaves left to grow to maturity and die off naturally in the autumn are not sufficient to recuperate the roots for the loss they have sustained by the great demand thereby made upon them. I should recommend that from this time but little should be gathered, and the beds should be assisted by manurial stimulants of such a character that will be quick in their effects, such as a copious application of manure-water made from stable manure, or failing this, guano, to which has been added a little soot, may be used at the rate of a handful to about 6 gallons of water, keeping it away from the leaves and crowns of the plants. If after this the ground be mulched with some littersy manure, it will be an advantage. The result of this will be found to well repay the little trouble involved.

Great Height of Australian Gum Trees.—"While the *Eucalyptus amygdalina* attains a height of from 473 ft. to 496 ft., the dome of the Invalides at Paris is only 343 ft. high, the Cathedral at Strasburg 462 ft., and the Pyramid of Cheops—the highest building in the world—476 ft. The *Eucalyptus globulus*, although not attaining to the height of the *E. amygdalina*, is still taller than the celebrated California tree, the *Wellingtonia*.

GARDEN WORK FOR EVERY DAY.

EXTRACTS FROM MY DIARY.

By W. DENNING.

July 2.—Potting *Thyrsacanthus*, *Poinsettias*, double Wall flowers, and *Amarantus*. Shifting *Odontoglossum Alexandræ* and *Masdevallia Harryana* into larger pots. Planting verandah boxes with Stocks. Putting out main crop of Celery, Chilies, and Chervil. Putting in cuttings of *Poinsettias*, staking Carantions, and removing superfluous shoots from espalier Pear trees. Earthing-up Brussels Sprouts. Cleaning walks, and plunging East Lothian Stocks in cold frames. Distilling Roses.

July 3.—Potting Victoria Stocks, and putting winter Carantions into their flowering pots. Sowing Campanula seeds, Parsley, and Intermediate Stocks. Planting May-sown Lettuce and Snow's White Broccoli. Putting *Heliotropes* cuttings to make plants for winter-flowering. Digging land for late Peas and Broccoli. Putting *Amaryllis* in sun to ripen their bulbs. Exposing ripening Peaches in late house.

July 4.—Repotting *Odontoglossum vexillarium* and *O. Roezli* in Moss and crocks, and top-dressing them with peat and sand. Planting Veitch's Autumn Giant Cauliflower and Savoys. Taking up Hyacinth bulbs and drying and storing them. Nailing in Peach, Plum, and Pear tree shoots. Thinning Turnips, and digging land for Early Horn Carrots.

July 5.—Planting Vegetable Marrows in frames lately cleared of Carrots; also more Celery. Washing *Lycastes* and other Orchids infested with thrips with Tobacco-water. Hoeing among all growing crops, and digging all vacant land.

July 6.—Potting *Selaginellas* for conservatory decoration, and putting young Vines into 10-in. pots. Planting a border with Ten-week Stocks and Asters. Looking over Gooseberry bushes and destroying caterpillars. Putting all spring-flowering bulbs that are dried off into hampers and storing them away in a cool place. Hoeing among Onions, Carrots, and Beetroots.

July 7.—Putting *Chrysanthemums* into their flowering pots, and potting young *Heliotropes* and scarlet *Pelargoniums*. Shifting *Odontoglossum cariniferum* into larger pots; also lately-imported Orchids. Shifting Canterbury Bells and Intermediate Stocks; also Red Globe Turnips.

Hardy Flowers.

HARDY ANNUALS.—We have early summer and midsummer blooming annuals, but a great many of the earliest are so late this season that the chief display of bloom will be in July. Annuals are looked upon as common flowers, but at best they are but imperfectly known. If evidence of this were needed, it could be found in lists of kinds frequently recommended for cultivation, which invariably include some that are scarcely worth growing, and omit others that are really valuable. Provided the soil be warm and light, and the situation dry, there are some annuals that should be sown in autumn, as, unless the winter prove wet and severe, they root better, make a more profuse growth, and flower earlier than if sown in spring. Among those which may be sown in autumn may be mentioned *Nemophilas*, Sweet Peas, Candytufts, *Eschscholtzias*, Sweet Alyssum, *Virginian Stock*, and *Limnanthes Douglasi* and *grandiflora*. The following are the names of some of the choicer kinds of hardy annuals that well deserve a place in gardens, viz., *Calendula pluvialis*, a kind with large, star-like, white flowers, having a dark centre, dwarf, and very free; *C. Pongei*, a double form of this, lasting a long time in bloom, and very like a white *Chrysanthemum*, but lacking the perfect arrangement of the petals; *Centaurea (Cyanus) depressa*, a sort with large, showy, rich, pale blue flowers, very striking at this season of the year, and most useful to cut from; *Calendrinia speciosa*, pretty rose; *Collinsia bicolor*; *C. multicolor*, a purple form of *C. bicolor*, and very good; *Gilia laciniata*, purplish-mauve, the flowers borne in dense clusters, a capital plant to cut from; *G. achilleifolia*, purple, very good; *G. tricolor*, effective; *Helenium Douglasi*, silvery foliage, large green flowers with orange centre, very effective; *Linaria bipartita*, white margined with purple, very pretty, and remarkably free, growing from 12 in. to 15 in. in height; *L. spartea*, very bright orange and yellow, highly effective; *Leptosiphon androsæous*, in variety, which includes several very pretty colours, such as white, cream, lemon, rose, and purple; *Lasthenia californica*, one of the most effective of the yellow flowering spring annuals, the flowers golden yellow with an orange centre, very dwarf, free, and effective, especially at a distance; *Loasa tricolor*, orange and red, dwarf, bushy growth, very good; *Nemophila insignis*; *N. maculata*,

the flowers white spotted with purple, large and showy; *N. discoidalis* and its varieties are interesting, but they lack the fine bold form of *N. insignis*; *Oenothera Bistorta Veitchi*, with pure yellow flowers on a dwarf growth, very free and effective; *Schizanthus pinnatus*, very handsome, with dark blotches on the upper petals; *S. gracilis*, a slender growing form, the flowers pale purple with dark markings; *S. pinnatus vigrioides*, the upper segments flaked black on a golden ground, very pretty indeed; *Silene rubella*, dark magenta, very pretty; *S. Pseudo-Atocion*, bright pinkish rose, very bright and effective; and *S. Saponaria*, a very attractive pink, like a large-flowered *Saponaria calabrica*; *Veronica syriaca*, pretty bright blue, might be very effectively grown in pots for spring work; and the white and red *Valerians*, both of which are valuable to cut from just now. This may appear a long list, but it is a select one, and it represents the very best annuals in bloom in the middle of June.

AQUILEGIAS.—I have this season bloomed in my little front garden, open to a public road, the neat *Aquilegia cœrulea*, and it has been generally admired. A few days ago an opportunity was afforded me of inspecting a large bed of double varieties, some of which were extremely pretty. Seed of good strains of double *Aquilegias* can be had at a reasonable price, and it would be difficult to name another border flower that has a greater interest for lovers of what might be called homely gardening. If the seed be sown in a prepared bed on a shady border, or in a shallow box in a cold frame, the plants, if properly cared for, will by the end of the summer have grown sufficiently large to plant out to flower. This is just what has been done in the case of the plants in question. They had great varieties of colour—blue, mauve, rose, lilac, creamy-white, &c., and some of the striped forms were admirable—one in particular had the white corolla handsomely flaked and striped with blue, and it had appeared both in a double and single form.

LUPINUS.—Of these there are some very beautiful annual varieties, to which it will be necessary to call attention later in the season. Just now some of the beautiful perennial kinds are in bloom and very fine; they are for border work, among them *Lupinus magnificus*, purple; *L. polyphyllus*, purplish-blue; *L. polyphyllus albus*, white; *L. elegans*, purple, very good; and *L. arboreus*, lilac. Seeds of these can be obtained, and if sown at once in a prepared bed, good plants would be ready to plant out at the end of the summer, to flower in May and June next. They are indispensable to the mixed border.

D.

TREES AND FLOWERS.

AMONG the chief silent friends, comforters, and cheerers of man are trees and flowers. I have sometimes asked myself, which gave me the more pleasure? Perhaps a reader will answer readily, "flowers." But think a moment! Time and continuity are great tests of friendship, and these test trees will bear; for although flowers soon wither, die down, perish, trees are more constant; they abide by us always; they are neighbours, I might almost say, for ever. Not only are trees with us in leafy June, one of the most enjoyable months of all the year, in their bright green splendour, but when autumn comes there they still are, clad in another garb of beauty more gorgeous, though not so glad some; and even in winter who would wish to be without their tree neighbours? The perfect symmetry of a tree is never better seen than in winter, and the dullest eye and heart recognize their vernal beauty. There are trees too which openly show no change in their leaves, and so gladden us all along the dreary season by their greenness. Moreover, in those that shed their leafy garb, see the fantastic forms of beauty which they become when decked by a hoar frost or a snow-storm, especially by the former. I would say that nothing takes off the dreary feeling of winter so much as the presence around us of finely grown trees. When all that out-of-doors formerly cheered us is gone, when flowers, corn-fields, and green Grass are no more, when hedges have become mere dark lines or intersected branchlets, yet the trees are there around us still, and present with us to comfort us. Perhaps no one can so thoroughly appreciate the value of fruit trees as one horn, or having lived many years among them. The treeless plains, like prairies, are akin to the ocean's calm, and on them companionship seems lost. We read of one, when the architect wished to cut away a noble old tree, who said, "No! move the house, but you cannot grow such a tree in my life-time. Oh! the hours of pleasure I have taken under its shade, and the sweet memories of youth and its associates they bring are beyond all of art's splendours." Trees vary indeed, according to season, but each variation is a separate beauty; bud, leaf, lighter at first, then darker; then come the rich, autumnal tints, and then the grand visible branches stretching far and wide during the winter months—long, low-hanging limbs; and when the heavy frosts come the whole tree is standing jewel-decked.—T. R. ELLIOT, in "Prairie Farmer."

ARECA PURPUREA.

THE ARECAS constitute a well-known section of the Palm tribe. A Catechu is a handsome tree, cultivated in all the warmer parts of Asia for the sake of its fruits, which are of the size of a hen's egg, of a reddish-yellow colour, and with a thick fibrous rind, within which is the seed; this is known under the name of the Areca Nut, Penang, and Betel Nut, and is about the size of a Nutmeg, but conical in shape, flattened at the base, brownish externally, and mottled internally like a Nutmeg. These Nuts are cut into narrow pieces, which are rolled up with a little lime in leaves of the Betel Pepper. The pellet is chewed, and is hot and acrid, but possesses aromatic and astringent properties. A sort of Catechu is furnished by boiling down the seeds of this Palm to the consistency of an

EFFECT OF COLOURED LIGHT ON PLANTS.

A CORRESPONDENT of the "Globe," Toronto, gives the result of some experiments in 1876, showing the effects of coloured light on plants, as follows:—I planted in a box some Curled Cress seed, and so arranged bottles of carmine fluid, chromate of potassa, acetate of copper, and sulphate of ammonia, that all but a small space of earth was exposed to light, which had permeated three-fourths of an inch of these media. For some days the only apparent difference was that the earth continued damp under the green and blue fluids, whereas it dried rapidly under the red and yellow. The plumula burst the cuticle in the blue and green lights before any change was evident in the other parts. After ten days under the blue fluid, there was a crop of Cress of as bright a green as any which grew in



Areca purpurea.

extract; but the greatest quantity of the drug called Catechu used in this country is the produce of *Acacia Catechu*. In Malabar another species, *A. Dicksoni*, is found wild, and furnishes a substitute for the true Betel Nut to the poorer classes. *A. oleracea* is the Cabbage Palm, which is found in abundance in the West Indies. It derives its name from the bud which terminates its lofty stem. This bud consists of a great number of leaves densely packed; the inner ones are of a white colour and delicate flavour, and serve as a vegetable. *A. purpurea*, the species represented by the accompanying woodcut, has recently been brought into notice by Mr. Williams, of Holloway. As will be seen, it is an extremely graceful kind, especially in a young state, and one which well deserves attention.

The largest Pine tree in Northern Wisconsin. — This is said to be in Wood County. At 3 ft. from the ground it measures 20 ft. 6 in. in circumference, and it is 70 ft. from the ground to the first branches.

full light, and far more abundant. The crop was scant under the green fluid, and of a pale, unhealthy colour. Under the yellow solution but two or three plants appeared, yet they were less pale than those which had grown in green light. Beneath the red bottle the number of plants which grew was also small, although rather more than in the spot the yellow covered. They, too, were of an unhealthy colour. I now reversed the order of the bottles, fixing the red in the place of the blue, and the yellow in that of the green. After a few days' exposure the healthy Cress appeared blighted, while a few more unhealthy plants began to show themselves from the influence of the blue rays in the spot originally subjected to the red. It is evident from this that the red and yellow rays not merely retard germination, but positively destroy the vital principle in the seed; prolonged exposure uncovered, with genial warmth, free air, and, indeed, all that can induce growth, fails to revive the blighted vegetation. I repeated the experiments many times, varying the

fluids, but the results have been the same. I have the above facts strikingly exemplified where the space covered by the bichromate of potassa is without a plant.

TAR PAVEMENTS.*

To many the construction of tar pavements is a familiar work, but there are others perhaps who have not as yet tested their suitability for suburban paths. In some counties, such as Lancashire and Yorkshire, tar pavement is not a matter that would receive much attention; but in the eastern counties, and other districts not favoured in the same way, and where stone pavements cost seven times as much as tar pavements, the latter is of some importance to towns requiring a clean and economical footway. In Ipswich the mileage of footways in proportion to the population is very large, the population being 46,000, the distance of streets and roads being about 75 miles. Of this about 22 miles are town streets, and double this distance would represent about the length of paths. Formerly all the suburban paths, as well as the majority of those in third-rate streets, were made with gravel. These, however, were always in a defective state. To prevent mud accumulating in winter, shingle was put on the surface. This shingle in summer time was disintegrated, and laid on the surface as though it had been strewn with Peas or Beans. To avoid this, loamy gravel was put on. Then, again, in winter this worked up into mud, and again had to be covered with shingle, and so on alternately winter and summer. The defects gave rise to continuous complaints, and having had experience of tar pavement in other towns, I was induced to recommend it as a substitute for gravel. My suggestion was approved by the authorities, and specimens of the pavement were laid, the first being done by contract at 1s. 3d. per superficial yard and maintained in repair for five years. This was thought to be too much, and the sanitary authorities decided to make their own. I have prepared the material in different ways, sometimes using simply pure coal tar; at others, refined tar; and occasionally, small portions of pitch, lias lime, and Portland cement in the preparation of it. But in practice (although I use mainly refined tar) coal tar is all that is required, and will make as good a path as refined tar, or any other admixture. I have two ways of making tar pavements in this borough. One is with shingle—that is, fine gravel; and the other with slag, which is clinkers and refuse cinder dirt from factory furnaces. The process of making with shingle is simple, and is as follows:—A fire is made on the ground and covered over with shingle; when this first covering is heated through more is added from time to time until there are about 10 or 15 tons. For convenience in sifting over the stuff after it has been heated through, it is desirable that the fire should be of an oblong shape, presenting a form something like the mounds under which Potatoes or Mangolds are stored in a field. After the whole has been sufficiently heated to take out the natural moisture, it is sifted, the fine being placed in one heap and the coarse in another; when about one barrowload of each has been sifted, boiling tar is thrown upon each of them while in a hot state: the whole is then turned over with shovels and thoroughly mixed. The coarse forms the bottom layer of the path, and the fine the top surface. After a path has been made about ten days it is dressed over the surface with boiling tar and sharp sand or ashes left from the heap of stones after burning. The sand combines with the tar and fills up the small interstices and produces a smooth surface. In making those pavements from slag it is not necessary either to heat the material or boil the tar. The material collected is turned over so that all the large clinkers are broken into small pieces, after which the whole is sifted over to separate the large from the small, and is then mixed with cold tar (unless the weather is very cold, when it is warmed to make it mix more readily). The material made in this way is laid down in the same manner as described for shingle, but is not dressed on the surface with boiling tar and sand, being better without, but it is covered with a copious sprinkling of white Derbyshire spar, which is well rolled into

the top layer to relieve the dull sombre appearance and give it a pleasing effect. In laying the paths care should be taken to roll the ground well, and bring it to a uniform surface before the bottom layer is laid on, to avoid uneven or soft places, which, if not provided against, would result in the path, after being down for a time, having a series of undulations on the surface; in laying each layer should be well rolled with a roller weighing about 7 cwt. The bottom layer should be 1½ in. thick, and the top one 1 in. It is advisable to keep the prepared stuff a few weeks before it is laid down, and although the work can be done in almost any season, spring and autumn are the most suitable, when it is dry and not too hot. Shingle tar pavements require dressing over with boiling tar and covering with sharp sand from time to time to preserve the surface, which, if not dealt with in this way, would become rough by reason of the softer material wearing from between the joints of the stones. The material does not always turn out equally well; sometimes a path will not consolidate, and at another time the surface will break up without any, as far as can be seen, apparent reason. The shingle tar pavement costs 9d. per superficial yard laid complete, and that made from slag, 11½d. Preference is given here to those made of slag, but are more costly in the first instance and less durable than those made with shingle, which can easily be understood when the nature of the material is considered; in the first instance we used shingle entirely, but from favourable reports of the Sheffield paths, and from a personal examination, and from the easier mode of preparation, I was induced to adopt that plan. I believe the Sheffield paths are better than those in this town, and I have no doubt it arises from the fact that the material is of a more durable character that can be procured in Ipswich. The cost of these pavements varies according to local circumstances, being as low, in the case of Sheffield, as 7d. per yard, and as high in London as 2s. 3d. From information obtained some time since I found that the general price of this kind of pavements was about 1s. per yard, exclusive of the cost of preparing the foundation. The price I have given for Ipswich paths includes the foundation. Tar pavements are generally adopted as an improvement on gravel paths, and are not supposed to be regarded as a material to be taken in comparison with asphalt, although I think they bear favourable comparison to many of the more costly pavements, and are, in my opinion, much to be preferred to the common asphalt prepared from pitch, to say nothing of the difference of cost, and which expands and contracts with variations of temperature. I have tried other materials for making cheap pavements for footways, such as bricks, earthenware tiles, and Portland cement concrete, but the cost, which is about 4s. 6d. per superficial yard, precludes their use for suburban paths, and their durability is not sufficient to allow them to be put in the place of York flagging for main streets. A path made from shingle, and repaired in the way I have described, would last, with the ordinary traffic of a provincial town, ten years. Paths laid under my directions as long since as this are still in fair condition. It is, however, difficult to say what the life of pavement would be without very careful observations extending over a considerable period, as the duration of any paved footway is simply determinable by the amount of traffic. Having regard to the economy of first construction, reduction of dust and scavenging, and the cleanliness of the path after rain, it appears to the writer that there is no better material for suburban footways than tar pavement. It may be objected that the dull appearance, the difficulty of repairing them so as to bring the repaired part even with the old, and the disturbance of the path caused by laying on gas and water, are against their adoption. The first objection can be avoided by using a good covering of Derbyshire spar, and the second applies, more or less, to any pavement, with the exception of York flagging. When I commenced to lay these paths ten years ago, they were rather scarce, and had only been laid to a limited extent in a few towns, but during the last five years they have been very largely extended, and will in future occupy a permanent position among other paving materials for constructing footways in towns; this shows the suitability of the material for such footways as I have referred to in this paper. There are now about 15 miles of these paths in Ipswich, taking the place

* Paper read by Mr. E. Buckham, C.E., at the meeting of the Eastern Counties District Association of Municipal and Sanitary Engineers and Surveyors, which took place the other day at Ipswich

of paths which would, if they had not been superseded with this material, have still been muddy in the winter, and so rough on the surface in summer as to make them always, more or less, unpleasant to walk upon, to say nothing of the indirect discomfort to the inhabitants by reason of the additional dirt in winter and dust in summer. The cost of paving this length of footways with other material would have been so considerable as to have prevented the possibility of doing it, and I look upon it as a great boon to the inhabitants of any town to get such good pavements for suburban paths at such a small cost.

Discussion.

Mr. Flintham said the paper fully bore out his opinion of the practicability of tar paths. The older the material was the better it was for use. It should not be used before it was three months old. In Aldeburgh they put gravel at the bottom and cinders at the top, which they found answered admirably. The spar was also put on more liberally than it had been in Ipswich.

Mr. Baker said his experience was that tar paths stood the wear and tear of traffic very well indeed. It was extensively used at railway stations for platforms, and that was a very good test as to its suitability. In Yarmouth they were using concrete largely, but the great objection to that was its expense.

Mr. Lobley had had no experience in laying tar paths. In Hanley they used blue bricks at a cost of 2s. 8d. per square yard. It would cost rather more than that in Ipswich, as the bricks would have to be carted further. The brick pavements would last forty years, and he made the suggestion that they would in the end prove less expensive than tar paths. He was going to try tar to test that point.

Mr. Ellice-Clarke was much obliged to Mr. Buckham for bringing the question of pavements forward. He was in favour of tar over gravel paths, but even at the low cost mentioned by Mr. Buckham, he did not know that they were the cheapest. He thought concrete pavement in bricks was more economical. He produced a piece taken from a street in Brighton which had been down twenty-five years in a thoroughfare where there were 1,500 passengers daily. It was originally 2½ in. thick, and had not appreciably worn—it had not worn one-eighth of an inch over the entire surface. It cost at the time it was laid 3s. 4d. per yard. In Folkestone they had abandoned tar for concrete, the cost of which was 2s. 4d. per yard. The Yorkshire stone pavements in Brighton had cost 9s. 9d. per yard, and had worn 100 per cent. more than the concrete. In making concrete blocks sea-water was used, which added materially to the strength. The cost of blue bricks was quite as much as the Yorkshire, and they were very slippery. The only asphalt to compare with concrete or York stone was the Val de Travers compressed asphalt.

Mr. Ditcham said some tar paths had lately been laid in Harwich at a cost of 11½d. per yard. They were made with cinder instead of shingle. The Caithness flagging had been tried, and wore very well indeed.

Mr. Hope pointed out that tar paths were not suitable for the south side of the streets on account of the heat in summer. At Scarborough they went to great expense in the matter, but in summer the tar paths were almost like sponge. The cost of carriage of blue bricks was very much against their introduction. In durability they answered very well indeed.

Mr. Inch said he had used some concrete at Lowestoft, and at present it wore well. The only objection against that or tar was the patchy appearance it had when broken up for gas or water pipes.

Mr. Goddard did not think that if the tar pavement was properly mixed it would become soft in hot weather. For suburban paths there was nothing so pleasant to walk upon, and when sparred they looked very nice. There was not much breaking up in the suburbs for pipes, and therefore the objection to the patchy appearance did not hold so strongly. In answer to Mr. Buckham, as to the better kind of tar to use, he was in favour of the adoption of refined in preference to the coal tar. It made a more solid path than the coal tar.

Mr. Wiggin thought the difference between the tars was a question of degree. He questioned whether pitch was not the better article.

Mr. Goddard said there were two difficulties—it was either too soft or too hard. It was, therefore, better to mix it with creosote, or any heavy oil.

The President said everything depended on the way in which the path was made. Mr. Goddard had laid a small sample in Winchester, and it had worn very well, but had not yet been adopted. It was a good substitute in suburban districts for gravel paths, and when that was said, he had said all. As regards flagging, he was in favour of Caithness.

Mr. Buckham agreed with keeping the material a little time before using it. As to bricks, his experience was not at all satisfactory, as the surface wore off and left a soft material. If he used bricks at all, he should use brimstone lumps, and he recommended them very highly where any one desired to use bricks. They would cost 4s. 6d. per yard to lay in Ipswich. The great advantage of tar paths was the smallness of the first cost.

WATER-CRESS.

IN these sultry summer days we should be all much cooler, and many of us infinitely more comfortable, did we eat less butcher's meat. Often for weeks at a time we really "enjoy," after a fashion, a tropical climate without any of the conveniences for keeping cool that dwellers in the sun-lands usually provide. We should, for instance, take more vegetable food, and, above all, more of those cooling salads which are at once so cheap and so wholesome. The simplest and most popular is probably the ordinary Water-cress. Extensively as it is used in London, in Paris, and other continental cities, it is not only eaten raw, but largely consumed as an adjunct to many *plats*. No less than thirty waggonloads of Water-cresses, each worth £12 sterling, daily pass the barrier of Paris, thus showing that the French capital expends on this ditch weed not less than £360 per diem. The Water-cress is one of the oldest known esculent plants. It is said to have been eaten by the ancients along with Lettuces to "counteract the coldness" of the latter by their stimulating qualities. Be that as it may, we know that there is no more powerful anti-scorbutic than the common Water-cress of our ditches. It is said that Nicholas Meissner, of Erfurt, about the middle of the sixteenth century, made the first effort at cultivating Cresses artificially, and to this day Erfurt is celebrated for its "Kresse," most of the Rhine towns, as well as Berlin, 120 miles distant, being supplied with them. In the neighbourhood of London, Water-cress culture was first commenced at Northfleet, not far from Gravesend, and is now carried on in many other localities, particularly near Rickmansworth in Hertfordshire, Waltham Abbey in Essex, and Uxbridge in Middlesex. Even the many acres of the plant cultivated can barely supply the demands of the London markets. How much is now consumed in the metropolis is not accurately known; but Mr. Horace Mayhew calculated that 14,958,000 bunches were sold in the course of 1851. Of this amount the street sellers alone disposed of £13,949 worth. The Cress for sale in Farringdon Street Market was at that date coarse, but ten times more of it was sold than the finer kinds offered in Covent Garden. Five hundred families—or, at least, 1,000 persons—supported themselves by selling Cress in the London streets. On an average they disposed of 5s. 6d. worth per week each, on which the profit was 3s. 6d. per individual. This estimate of the Cress trade in London does not, of course, take into account the amount brought in directly from the country and disposed of by street hawkers or to the greengrocers. It is only the costermonger's share in it that is spoken of. As the population of London has so vastly multiplied in 26 years, the amount now consumed must be much greater, and is likely to increase, as the doctors have now discovered that in addition to being a wholesome salad, Water-cress is a valuable remedial agent in some forms of febrile diseases.—"Echo."

Transit of Plants by Post.—Persons residing in the country should take advantage of the parcel-post system. A few weeks ago I received a small parcel from London containing 15 lb. of Potatoes of the new exhibition kinds; the carriage to North Yorkshire per rail was 4s. A few days afterwards I received two parcels by post containing thirty-six bedding Geraniums, fifty Lobelias, fifty golden Pyrethrams, and thirty-six *Perilla nankinensis*, the postage of which was 7d. The advantage and convenience of the postal system to amateurs are very great, especially to those residing in the country, because the plants are brought to their doors along with their letters. The plants do not suffer so much as those sent by railway, which are sometimes a whole week in arriving at their destination, besides the trouble of sending for them to some distant railway station. Plants packed in a little Moss and placed in strong pasteboard boxes arrive in fine condition.—H. TAYLOR, in "Gardeners' Magazine."

Double Scarlet Geum.—This fine plant deserves a more conspicuous notice than the brief reference made to it in your last week's number. If it were characterised as one of the very best of the early-blooming hardy perennials, its merits would not be at all exaggerated. The flowers are very large, of a deep scarlet, verging on crimson, and like most double and semi-double flowers, it retains its petals longer than the single form. A mass of it is most effective, and as it is one of the easiest of plants to cultivate, and comes true from seed, it is within everybody's reach.—W. THOMSON, Ipswich.

PERENNIALS FOR BEDS.

THE secret of the success of the bedding system, now so much in vogue, lies in the fact that a good-sized mass of any one given plant when in flower is far more striking and effective than is a single plant of the same variety. Of course, this is a mere truism, but it is one not sufficiently considered in garden arrangements, and too often the splitting up of quantities into units, has had as a result that nothing is left worthy of notice. It is thus, that because we grow so many of our hardy perennials rather as border curiosities than as decorative plants, we find them passing out of popular favour. A blazing scarlet Pelargonium or yellow Calceolaria would naturally prove more attractive with the masses than any single plant of Aquilegia, Delphinium, Rocket, or other good border perennial. We want a public garden devoted to the cultivation of hardy perennials and biennials in masses, both as a means of educating people unacquainted with hardy plants and illustrating their value for bedding purposes. We do not want bedding perennials, we rather want beds of perennials, which is a vastly different thing, and likely to be productive of more useful results. It is to be regretted that the series of beds on either side of the broad walk at Kew should be devoted to the growth in summer of a few kinds of tawdry bedding plants, whilst each bed might at some time or other be rich with the abundant blossoms of some noble perennial. In the same way, what a means of showing the public the various beauties and characteristics of good hardy plants is lost by the plan on which the long series of beds that run from the Marble Arch to Hyde Park Corner is managed! To many it is but a question of taste, and as it is evidently the object of the authorities to pay deference only to what a flower-loving but untaught public may prefer, there is little prospect of the present routine system of summer bedding being given up, even though the mountain has to labour during eight months of the year to bring forth the small display seen during the remaining four. Cultivators do not care to bed out perennials, because they cannot work out designs or secure a continuous bloom with them, but the object of growing perennials and biennials rather should be not to secure the coveted uniformity, but to obtain good showy masses of each kind in its proper season. In many instances one variety of the same family might be used to edge another, and selections of the most favoured of hardy perennials might be made. A couple of hundred beds bordering a broad walk, containing at least some 300 or more of fine kinds of hardy plants, would be indeed a glorious sight, and with a good representative selection would furnish beds in bloom in unbroken succession from March to November, nay, by means of Hellebores, Anemones, &c., the bloom might begin in January, and thus keep something in flower almost all the year through. Large numbers of people are familiar with many hardy plants only by name; they read that such things are in flower at Tooting or Tottenham, or elsewhere, but these places are to them practically inaccessible. In all the public parks and gardens, bedding, as the fashion goes, is continually duplicated, until the reduplication breeds satiety. Cannot one public place be devoted to hardy plants as a means of educating the people, whilst all the bedding-out traditions of the past are boldly thrown to the winds?—A. D.

CULTIVATION OF TREES IN TOWNS.

At a recent meeting of the Manchester Field Naturalists' and Archaeologists' Society at Handforth, a paper was read by Mr. Alcock on Trees in Towns. Mr. Alcock, who has paid special attention to the subject for a number of years past, and made many experiments in planting trees in close proximity to his mill, situated in the outskirts of the town of Bury, said that the tendency to attribute every failure in plant cultivation in towns to smoke involves a fallacy that wants guarding against. The Rhododendron, for instance, grows very well in his neighbourhood, even in the most smoky situations, and without any particular care being taken about the soil in which it is planted, though no doubt care in this respect repays the cultivator. On the other hand, the Rhododendron will not grow at all at Evesham, in Worcestershire, where the atmosphere is so pure and the climate so genial that the place has been called the garden of England. Again, the Plane (*Platanus orientalis*) has been represented as a good tree for towns because it flourishes in Paris and London. But the latitude, rainfall, soil, and subsoil of Manchester are different from those of Paris and London, while the smoke and noxious vapours in London are as nothing compared with what they are in Manchester. Mr. Alcock has planted six trees of *Platanus orientalis*, and they will not grow at all. The different sorts of Poplars have also been recommended. Experience at Bury has shown that they make very rapid growth at first, and then die. Mr. Alcock stated that he had at present a couple of Black Italians, a Balsam, and four or five Abeles, which have all been planted within the last

six years, and look healthy enough; but he knows from experience that they will shortly die, as he had already eradicated about two score of them. At Gatley, which is about the same distance from Manchester on one side that Bury is on the other, the Poplar in all its varieties grows well, but the climate is quite different, and the flora on the Gatley side of the city altogether more rich. The state of Mr. Alcock's Limes indicates perfect health, notwithstanding the unfortunate circumstances in which they are placed. Up the Rhine this tree is cut, twisted, trained, and tortured in every possible manner to form covered ways, and yet it lives and flourishes. The Lime will stand smoke, and will grow in Manchester if it be properly planted, as will also the Wych Elm, Sycamore, Birch, Horse Chestnut, and Turkey Oak. He has grown three or four plants of the Ash for about four years, and they seem to do well. The Beech grows well; he has not lost a single tree during the last twenty-five years.

INTERPRETATION OF VARYING FORMS.

MR. MEEHAN said that Mr. W. Bartram, in the last century, had found forms of *Liriodendron tulipifera* on the Schuykill River, as he had been informed by his son-in-law, with entire leaves, but only this year had he succeeded in discovering them: some of these leaves he exhibited. He observed that years ago, such discoveries had an interest in themselves. Now the botanist expected to find entire-leaved forms among kinds usually lobed, or lobed ones among the entire-leaved class; the only value now in these discoveries is in any lesson they might teach. As a rule, he hesitated to refer to the unpublished observations of others, preferring that the discoverers should, in their own good time and way, report what they had found; but hoped to be pardoned on this occasion, for saying that on a recent visit to the Academy, Dr. Engelmann had pointed out that some Oaks had lobed leaves even in early infancy, while others had entire leaves, but that those which had the early-lobed leaves assumed more entire leaves when mature, and those which had entire leaves when young, had lobed leaves when fully grown. In many Oaks which he had examined he found Dr. Engelmann's observation correct, and that it extended to many other plants. Mulberries generally had lobed leaves in their younger years, but when mature the leaves were uniformly entire; and this was especially well known in the case of the *Broussonetia*. In young Japan Honeysuckles the leaves were querciform or variously lobed, while at maturity the tendency to union was often remarkable. In the common Ivy the half-entire leaves of the young plants always gave place to lobeless forms when of fruiting age; but it was in cruciferous plants that the differences were best seen. Here lyrate or pinnatifid leaves in infancy often gave place to entire ones as the plants grew, while there were numberless instances in which entire juvenescent leaves gave place to pinnatifid ones in adolescence. However, the point was, that there was often a vast difference between the leaves of a plant's early life, and their form in advanced age. In Conifers he said this was well known. During the first few months from seed, the different species in their several sub-divisions were so nearly alike, that it was almost impossible to tell any one apart till a little age had brought divergence from the original type. He exhibited some young Thujas to illustrate this; the early Thujas all had ericoid leaves. In the forms which we knew as *Arbor-vitæ*, the condition with which we were familiar was the secondary form. In these, the leaves, which in juvenescence were free and heath-like, had become almost wholly united with branches. But there were cases where the young *Arbor-vitæ* had never had power to leave their early condition. Of this class were many so-called *Retinosporas*, *Biota Mendensis*, and many Junipers and Thujas. He had known the Thuja ericoides of gardens remain fifteen years in this infantile state, and then only one of thousands to regain the pure adolescent or fan-like *Arbor-vitæ* form. In all these cases it is important to notice that a comparative feebleness of growth, and an absence more or less total of all disposition to produce flowers, go with these continuously juvenescent characters. With the appearance of sexual characters, there is a change of form, and, in proportion as this change is the more marked, is the relative productiveness. The White Oak (*Quercus alba*) which, during its first year has entire leaves, has them lobed at maturity, and the trees which have them the most deeply lobed are the most productive in Acorns.

He found these observations to hold good in the entire-leaved *Liriodendron*. During the first year all Tulip trees had entire leaves, or at least more or less so in comparison with those which they afterwards assume. These large trees with entire leaves had merely retained their juvenescent form; the other attendant characters of juvenescence were also present. The tree from which the large, entire leaf exhibited was taken had no signs of ever having borne seeds. In one place he found two trees which, from surrounding

circumstances, he should judge were probably about the same age, and in every circumstance relating to nutrition equally favoured: one with very deeply cut leaves even to the most feeble branch was covered with seed cones, and was 13 ft. in circumference; the other had leaves almost entire, with but few fruit, and a trunk of only 8 ft. round. The danger was that in discussing laws of variation in connection with the origin of species, we may overlook the sexual and physiological changes.—“Proceedings of the American Academy of Sciences.”

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE ROSE SHOW.

JUNE 23.

THIS exhibition was largely attended—indeed crowded—during the early part of the afternoon. Cut Roses were shown in excellent condition considering the earliness of the season, but as regards numbers, they were by no means so large as usual, and the majority of the best blooms had evidently been produced under glass. In the nurserymen's class for seventy-two blooms, Mr. May, Hope Nurseries, Bedale, who was first, exhibited fine examples of the Tea-scented Madame Villermoz, large and well-coloured blossoms of Charles Lefebvre, Marie Sisley, Monsieur Etienne Levet, Louise Peyronny, and Black Prince. In the same class Messrs. Paul & Sons, Cheshunt, staged some fresh-looking blooms, amongst which were noticeable bright blooms of Duke of Edinburgh, Brightness of Cheshunt, Madame Vidot, François Michelon, and large flowers of Paul Neron. Mr. Charles Turner, Slough, staged the best forty-eight trusses of three blooms each; they comprised Madame Thérèse Levet, Duke of Edinburgh, La Rosière, and very large, richly-coloured trusses of Maréchal Niel, and Cheshunt Hybrid. Messrs Paul, too, had charming blooms of Madame Lacharme, Jean Cherpia, and Victor Verdier. From Messrs. Mitchell, Pittdown, came fine examples of Charles Margottin, Madame Margottin, Paul Neron, and Marquise de Mortemarte. In the class for twelve Roses of 1875 and 1876, Messrs. Paul & Sons were first with good blooms of Miss Hassard, Abel Carrière, Avocat Davivier, and remarkably well-coloured flowers of the dark crimson Sultan of Zanzibar. Mr. Turner showed in the same class Duchesse de Vallombrosa, Mrs. Baker, and Oxonian, in excellent condition. The best collection of Yellow Roses came from Messrs. Mitchell & Sons, and consisted of fine shapely blooms of Elise Sauvage, Adrienne Christophle, and Marie Van Houtte. In the amateurs' class the best blooms came from Mr. Davis, The Square, Wilton; these comprised good examples of Louis Van Houtte, Sir Garnet Wolseley, and Devoniensis. A good exhibition also came from Mr. Chard, Clarendon Park, Salisbury, who had Star of Waltham, Rubens, and Madame de St. Joseph. Mr. Ridout, gardener to T. B. Haywood, Esq., Woodbatch Lodge, Reigate, had beautiful examples of Abel Grand, Reynolds Hole (deep crimson), Marie Beauman, and La France. From Mr. Jowitt, Old Weir, Hereford, came good collections, in which were Belle Lyonnaise, exquisite blooms of Niphetos, the dark velvety Paul de Rohan, and the brilliant crimson Maréchal Vaillant. The best wedding bouquet was furnished by Mr. S. Moyses, Belgravia, but it appeared to us to be too large to be conveniently carried in the hand; it was composed chiefly of white Moss Rose buds, Gardenias, Tuberoses, double white Primulas, very small Jasmin-like Bouvardias, Ferns, and Grasses. Cut blooms of stove and greenhouse plants were sent in good condition by Mr. James Bolton, Combe Bank, Sevenoaks, and Mr. Bones, Havering Park, Essex; the former had excellent spikes of the scarlet Clerodendron fallax, Vinca oenolata, Ixora Williamsi, Brassia verrucosa, and remarkably large blossoms of a rich orange-salmon-coloured Begonia (B. Royalty) and Flamingo-plant (Anthurium Scherzerianum). On Mr. Bones' stand we noted fine blooms of Allamanda grandiflora, Pancratium speciosum, and mauve-coloured Bougainvillea; the best épergne, composed of Roses and Rose leaves only, came from Mr. Turner, of Slough. It consisted chiefly of Moss and Tea-scented kinds, all of which were highly and tastefully arranged. Mr. Soder had also a well arranged stand, but the blooms were of inferior quality; all the rest were much too heavy in appearance. Of table decorations, a report by Miss Hassard will be found in another column.

Miscellaneous Exhibitions.—Mr. Parker, Tooting, sent a collection of cut flowers of herbaceous plants, which was much admired; it contained blooms of Irises, the double-flowered variety of *Hesperis matronalis*, Larkspurs, and *Dietamnus Fraxinella*. The same exhibitor also showed stands of cut blooms of *Pæonias* in excellent condition; Mr. Cannell, Swanley, sent cut blooms of *Pelargoniums* in good condition; amongst them we noted trusses of the lovely salmon-coloured President MacMahon, and the rich, rosy-pink Lady Emily. *Verbenas* in variety were also shown by the same exhibitor, and they attracted much attention on account of their having unusually large, brilliantly-coloured pips. Mr. Burley, Brentwood, had also good stands of *Pelargoniums* of a meritorious character. From Mrs. Hodgkins, Hyde Grove, Manchester, came a collection of skeleton leaves and flowers, which were greatly admired.

Scottish Pansy Society's Show.—The thirty-third annual competition of this Society took place in Edinburgh on the 15th inst. The show was more successful than was anticipated, considering the backwardness of the spring. The flowers exhibited were, on the whole, remarkably fine and in great variety, and many of the exhibits were from comparatively distant localities. Of Pansies selected from any stand in the exhibition, Mr. William Paul had the best dark self, a mauve seedling, named Michael Saunders; best white self—Mr. Barr, with Princess Beatrice; best yellow self—Mr. Fleming, with Zama; best blue self—Messrs. Dickson & Co., with Sunnypark Rival; best white ground—Mr. Fleming, with Jeannie Fleming; best yellow ground—Mr. Ritchie, with Robert Burns; best flower in the room—Mr. Paul, with Michael Saunders. A first-class certificate was awarded to Mr. William Paul for three blooms of seedling white ground—Annie Wood Paul. A certificate of merit was also awarded to Mr. Todd, Newmilns, for one bloom of yellow ground Rev. J. T. Barton. A certificate of merit was likewise awarded to Mr. Paul for one bloom of mauve seedling Michael Saunders. The following were among the finest-named blooms:—Fancy Pansies—The Bride, James Grieve, James Taylor, J. B. Downie, Lizzie Cowan, Isa MacMeeking, Rev. H. Dombain, Miss Wallace, Mrs. Taylor, Buttercup, William Nimmo, M. Scott, Auntie Cuckoo, William Melville, Thomas Grainger, John Currie, F. W. Leland, W. Broadfoot, Kirbie, Adonis, Mrs. James Watt, James White, Portia, Miss McNutt, Countess of Strathmore, and Mrs. Birkmyre. Show Pansies—Jessie Foot, Robert Black, Jenny Anderson, Robert Burns, Bessie McAslan, Mrs. Arthur, Miss Hope, Annie W. Paul, Miss Rogers, May Queen, Michael Saunders, Mauve Queen, Sir Peter Coats, George Steedman, Princess Beatrice, Zama, Jeannie Fleming, Mrs. Fraser, Mrs. Horsburgh, D. McHutcheson, Royal Blue, Donald Sutherland, Ebor, John Waterston, Captain Knowles, Jeannie Grieve, Rev. J. T. Burton, and Sunnypark Rival.

QUESTIONS AND ANSWERS.

Cupressus Lawsoniana in flower.—I have a fine example of this charming Cypress completely laden with fruit, and a few weeks ago it was one mass of bloom, surpassing everything else in neatness. Is this at all uncommon? I. SHACKLETON. [The Lawson Cypress fruits abundantly, and seedlings have been raised in quantities from home-grown seeds.]

Destroying Plantains on Lawns (see p. 536).—Touch the crown of each Plantain with a small drop of sulphuric acid. In a few hours the Plantain will be destroyed, leaf and root. This mode is less tedious than grubbing, and it does not disturb the soil. Lawn sand, so far as my experience goes, kills everything it touches, except the roots of the Grass. After some weeks the Grass, therefore, comes again; but meanwhile the bare patches are a sad eyesore. If for some months the appearance of the lawn were given up, perhaps lawn sand might be useful. It seems to kill Daisies.—SCREBY.

Pickled Samphire.—Can you give me a good recipe for making this pickle? The plant (*Crithmum maritimum*) occurs plentifully upon the rocky coasts of South Wales, and is just now coming into bloom. I fancy that this ought to be the best time for collecting it, as its peculiar odour is now very strongly developed.—W. P. T.

Notice.—“F. W.,” “P. C.,” “A. W.,” “J. B.,” “H. C.,” and others are reminded that we never name plants or fruits unless the full address of the sender be given. The printed name of a plant or fruit can be of no interest to any but the person who sent it, and therefore we always reply by post upon receiving the address.

END OF VOL. XI.

