

Per.
Eng
F-
W



HARVARD UNIVERSITY

LIBRARY

OF THE

GRAY HERBARIUM

Received 26 Oct. 1912.

THE
Florist and Pomologist:

A PICTORIAL MONTHLY MAGAZINE

FLOWERS, FRUITS, AND GENERAL HORTICULTURE.

CONDUCTED BY

ROBERT HOGG, LL.D., F.L.S.; THOMAS MOORE, F.L.S.;
AND WILLIAM PAUL, F.R.H.S.

1870.

LONDON:

PUBLISHED AT THE "JOURNAL OF HORTICULTURE" OFFICE,
171 FLEET STREET.

Gray Herbarium
Harvard University
26 Oct. 1912

LIST OF COLOURED FIGURES.





Jas Andrews, Delt. & Zinc.

Rose Princess Christian

THE
FLORIST AND POMOLOGIST.

ROSE PRINCESS CHRISTIAN.
WITH AN ILLUSTRATION.

PRINCESS CHRISTIAN ROSE, the subject of the accompanying plate, has been so frequently before the public that we need do no more, in this place, than describe the colour of the flowers, and the character of the plant. The colour ranges from deep salmon to rosy peach, according to the age of the blossoms, and holds on clear and bright to the last. There is a peculiar and beautiful gloss on the face of the petals which the pencil of the artist cannot portray, and which gives it distinctness. The flowers are very large, double enough, globular in the bud state, and finely cupped when expanded; and it gives forth these flowers continuously and abundantly from June to November. The growth is robust, the constitution hardy, and the foliage and habit distinct and of a pleasing character.

This promises to be a good exhibition rose when taken in a young state, and a grand rose for the garden at all times. Mr. William Paul, of Waltham Cross, is the introducer of this novelty, which, we learn, will be distributed from his nurseries in May next. Three First-Class Certificates have been awarded to the Princess Christian during the year 1869—one by the Royal Horticultural Society, one by the Royal Botanic Society, and one at the Crystal Palace Rose Show.—M.

THE GARDEN MENTOR.

JANUARY—the beginning of another span of time—affords an opportunity, which should be seized upon, for planning out or revising the garden features of the coming year. In the series of papers which I propose giving under the above heading, it will be almost impossible to avoid the repetition of instructions that have appeared under the head of “Seasonable Hints,” but it is hoped that some additional practical items of a useful nature will also be found.

KITCHEN GARDEN.—After the fine, open, dry autumn we have had, the work
3RD SERIES.—III.

here should be in a forward state ; but if from any cause it is not so, no time should be lost in bringing up all arrears. A covering of snow, and a few week's frost, would now prove to be very seasonable. It would do little or no harm, and would do an immense deal of good, by giving things a salutary check. All vacant ground ought ere this to have been turned up by rough digging, trenching, or ridging, so that the frost and air may act on it. All plans and arrangements for the ensuing season should be considered and decided on. When this is done, and everything sketched out, every operation can then be proceeded with in proper order. *Lettuces* and *Cauliflowers* in frames should be picked over, *Seakale* and *Rhubarb* covered for forcing, and some *Mint* put in a hot-bed to force.

Sow : Peas and Beans for second crop, in open weather, when the soil is dry ; Radishes and Early Horn Carrots on warm border ; also a row of Parsley ; Mustard and Cress in a hotbed ; also Melons and Cucumbers in a hotbed.

FORCING-HOUSES.—Air-giving and firing are very important matters to be attended to at all seasons of the year, but particularly so at the present time. Young cultivators sometimes make sad mistakes in firing and giving air ; generally they are inclined to fire hard at night, and to neglect it during the day, keeping the houses closed to get up the temperature, never thinking of giving air until forced to do so by a sudden burst of sunshine. I need hardly say how wrong such practice is. A safe night temperature should be maintained in all forcing-houses, but a very high one is as injurious as a very low one. Firing should be applied early in the morning and forenoon, so as to enable the cultivator to give as much air as the state of the weather will permit. *Vines* : Those in the early house will now be in bloom or coming into bloom, and must, therefore, receive great attention ; a steady night temperature of 60° must be maintained ; this will be sufficiently high on cold nights, but on mild nights 65° would be better. On clear days, 70° should be the minimum from fire-heat, but 10° more from sunshine will be beneficial. Late ripened Grapes hanging on Vines should now be all cut, and stored away in bottles on the French system, so that the vines may be pruned at once.—*Peaches* : Abundance of air should be given in the day, and a little fire-heat ; except in very cold weather, very little fire-heat should be given at night ; the inside borders should be well watered.—*Figs* : These do admirably well in pots and tubs, and there is this advantage in thus growing them, that they can be moved from one house to another at pleasure ; they should have plenty of water, and be kept well syringed.—*Cherries* : These also do well in pots and tubs ; they do best in a little bottom-heat, otherwise they are apt to fall off in stoning ; they like plenty of air at all times.—*Strawberries* : These should be kept near the glass, be carefully watered, and especially when in flower, should have plenty of air ; a little bottom-heat to start the plants in is an advantage. Introduce a fresh batch of plants once a fortnight.

HARDY FRUIT GARDEN.—Operations here will depend on the state of the weather. In the absence of frost, fruit-trees of all kinds may be planted, the ground, of course, having been previously properly prepared. One uniform mode of

planting in all situations, and under all circumstances, is not to be recommended. In gardens where the soil is of a stiff, heavy nature, and the subsoil a strong retentive clay, it is advisable to plant the fruit-trees on mounds a little elevated above the surrounding soil ; but where the soil is of a light, porous nature, resting on a gravelly subsoil, it is advisable to plant on a level with the surrounding soil, and in some places in hollows a little below the natural level. Long experience has taught me the advantage of attending to these matters, trivial as they may appear to some. It is also advisable to mix plenty of good rotten dung in light soils, resting on hungry, porous subsoils.

FLOWER GARDEN.—*Plant Houses*: As we generally have more or less frost during this month, care must be taken to exclude it by making gentle fires at night. A night temperature of 40° will be a safe one for hard-wooded greenhouse plants, as most of them will now be in a state of rest ; but *Cinerarias*, *Primulas*, *Pelargoniums*, &c., will be benefited by a night temperature of from 45° to 50°. Hardwooded plants should be watered carefully, but softwooded plants, in a free-growing state, will require a more liberal supply. Take every advantage of favourable weather to give some air. In frosty weather, soil should be got ready, crocks broken, pots cleaned, and sticks and labels prepared, so as to be in readiness to commence potting next month.

Pits and Frames.—These should be kept well covered up in frosty weather, but the coverings should be removed during the day-time when the glass is not frozen, as the more light the plants get, the better they stand the confinement. When kept dry and well covered in severe weather, it is surprising in what good condition even very tender plants can be safely wintered in these structures. I have more than once kept a quantity of seedling *Cinerarias* in a frame during a severe winter, by keeping them as dry as possible, without allowing the plants to suffer, and covering well up at night. *Bedding Plants* must be looked over frequently. Where there is a Vinery at work, the potting-off of *Pelargoniums* for bedding should be commenced at once ; when potted, they should be placed in the Vinery, and they will soon begin to root and grow freely.

Out-Doors.—If the weather be very severe, very little can be done in the open ground. When there are alterations in hand, advantage should be taken of favourable weather to push them on. Coverings should ere this have been applied to everything requiring protection from frost. *Bulbs* should be frequently looked over, to see that rats and mice do not get at them. To be well in advance with the work, everything that can possibly be done now should be attended to, as by and by every day will bring an increase of work. In favourable weather *Trees* and *Shrubs* of all kinds may be planted in the pleasure-grounds. Care should be taken to lift large valuable specimens with good balls, and to injure the fibres as little as possible. *Conifers* like a dry situation, rather elevated and exposed to the sun and air, but sheltered from strong winds. Many a valuable specimen has been lost by being planted in a snug, sheltered, confined spot, for in such positions

the trees grow on late in the season, the wood rarely gets matured even in fine seasons, and never in bad ones, and the consequence is, that the first severe frost after an unfavourable season kills the tree to the ground.—M. SAUL, *Stourton*.

A FEW HINTS TO FRUIT-RAISERS.

THE extensive and varied collections of Fruits of different kinds that we possess in our gardens, already gives us a very satisfactory and sufficient choice, as far as quality is concerned ; but there is yet ample scope for those who can afford to devote themselves to the agreeable task of improving, by the arts of cultivation and hybridization, the fruits we justly prize. And although the productive power, as regards the development of varieties from seed, of every tree and plant seems illimitable, yet possessing already, as we do, so many good apples, pears, plums, strawberries, &c., we have less reason to seek to amplify the already extended lists of these fruits, than to secure properties and peculiarities that are confined to a comparatively few individuals in each section.

What would be a great boon, and what it is most desirable we should seek to obtain in cultivated fruits, is the increase of those kinds of which a few examples exist as guides and types of what we may hope to attain. For example, amongst all the fruits we grow, we have one or more that possesses, with a prolific habit, a constitutional strength and vigour so happily united with its character of productiveness, that while the great majority of sorts of fruits are exhausted by heavy crops, and require a year's rest to restore their fruiting powers, these fortunately-constituted trees continue to produce crops year after year. *Denyer's Victoria Plum* is a ready example of a tree possessing great and unfailing fruiting powers as a wall fruit. I have never known an instance of failure in this variety, and it seems equally at home in any aspect. *Herefordshire Pearmain Apple*, or a pearmain resembling it, has for fifteen years proved, like the plum above named, unfailingly productive ; and this year, which has proved a bad one for apples generally, my favourite produced its usual crop. *Frogmore Prolific* is another apple that has never yet failed ; and I think Mr. Powell, of Frogmore, confirmed the favourable opinion I expressed of this apple, from its habit of giving an annual crop, by telling me that his experience coincided with my own. He also cited *Rosemary Russet*, *Scarlet Russet*, and *Pomona*, as being reliable as annual croppers. I am unable to instance a Pear that may be cited as an example of the habit of fruitfulness possessed by the apples named above. I have never known *Beurre de Rance* to fail entirely ; but the Pear that never fails has, I opine, yet to be obtained. I think the *May Duke* may be instanced amongst Cherries ; and *Keens' Seedling* may illustrate a prolific habit in Strawberries. These suggestive remarks will, perhaps, be understood from the few examples I have given.

There is one property common to a few varieties of Pears which, if possessed by any new kinds, would make them doubly valuable. It is one of the recommendations of the old *Crassane* that it remains sound and fit for use after attaining

maturity and ripeness; *Orpheline d'Enghein* also remains ripe without rotting for a long time. *Marie Louise* is a delightful pear, but it has almost to be watched, for it is ripe in one hour and rotten in the next. Could we obtain a *Marie Louise* with the amiable peculiarity of waiting a little longer to be eaten, what a gain it would be to gardeners!—WILLIAM INGRAM, *Belvoir*.

NEW PLANTS OF 1869.

HE record of Novelties for the year that is past is by no means a scanty one.  Some of the subjects which it includes we have from time to time referred to, but we propose in this place to note a few words collectively concerning  those New Plants which, in our judgment, are, for our gardens, the most important acquisitions of the year.

Among Palms, those princes of the vegetable world, *Welfia regia*, from the Amazon country, recommends itself as a handsome plant, with deeply bilobed leaves; while *Plectocomia elongata*, from Java, with the stalks whitened and studded with tufted pale-coloured spines, and *Martinezia Lindeniana*, from Tropical America, a palm of a very distinct character, its short, broad leaves being jagged at the margins, and its glaucous leaf-stalks being furnished with long, slender spines, are other welcome additions to the bilobed group. *Seasorthia Veitchii*, from Australia, is a novel pinnate species in the way of *S. elegans*. Then *Veitchia Johannis*, from the South Sea Islands, with truncate leaflets; *Oncosperma Van Houtteanum*, from the Seychelles, with dark, needle-shaped spines on the reddish stalks; *Ptychosperma Alexandræ*, from Tropical Australia, with quite smooth leaf-stalks—all these having bold arching foliage; and *Calamus ciliaris*, from Java, with its neat short leaves, formed of narrow, closely-set pinnæ, are other examples of elegant species furnished with pinnate foliage. Of a distinct type is *Thrinax havanensis*, from the West Indies, which furnishes a very handsome slender-growing palmate-leaved species, strikingly adapted for decorative uses.

Ferns have received some important additions. Amongst the stove species, the finest by far is *Davallia pallida* alias *Mooreana*, a large decompound pale-green species, from Borneo, remarkable for its small oblique segments, and its bulging sori. *Acrophorus* (or *Davallia*) *hemiptera* forms a charming small pinnate basket fern, with creeping rhizomes, and comes also from Borneo; while amongst new gold ferns we have *Gymnogramma Laucheana gigantea*, a deep golden, broad pinnuled Belgian variety, of great beauty and interest. Greenhouse ferns are represented by *Adiantum Capillus-veneris magnificum*, a variety with very large crispy and incised pinnules, rivalling in beauty the exquisite *A. farleyense*; another variety of the same species, *undulatum*, is interesting from its crispy appearance; and *A. excisum Leyi*, also a garden variety, forms a condensed cristate mass. *Asplenium fernandezianum*, introduced from Montevideo, is a pretty dwarf pinnate proliferous species; *Pteris serrulata cristata magnifica*, an English seedling, is a grandly crested form of an elegant species, common in the typical form, and re-

markably free-growing ; and *Todea intermedia* is a New Zealand film-fern, connecting the two species already known in cultivation,—*superba* and *hymenophylloides*. Of hardy ferns we may specially mention *Struthiopteris orientalis*, from Japan, a bold species of distinct character, with dimorphous fronds ; while of British varieties, *Athyrium Felix-femina Elizabethæ*, with dwarf fronds, having dilated rachides ; and *A. F.-f. kallothrix*, a fringy plant with remarkably finely-cut divisions, may be noted as particularly distinct and desirable.

From the lists of new Hardy Trees and Shrubs, we select the following as the most desirable subjects :—*Acer rufinerve albo-limbatum*, a noble Japanese Maple, also known as *A. japonicum argenteum*, with broad palmate leaves, margined and mottled with white ; *Liriodendron tulipiferum aureo-pictum*, a Belgian variety, having its leaves blotched in the centre with yellow ; and *Quercus striata japonica*, with firm ovate-lanceolate leaves, variegated with greenish-yellow. Conifers have yielded two charmingly elegant forms of *Cupressus Lawsoniana*, namely, *pendula alba* and *albo-spica* ; the first is entirely of a silvery or glaucous hue, and most elegantly drooping ; the second, also a very ornamental plant, has silvery whitish twigs, but is not pendulous like the former. *Thuja gigantea (Lobbii) aureo-variegata*, with patches of the young twigs of a clear yellow, is a most beautiful variegated Conifer of garden origin ; and from the French gardens we get *Pinus Strobus umbraculifera*, described as a densely-branched, bushy, ornamental plant, with shorter and more crowded leaves than in the type. Passing to Ornamental Shrubs, we find that *Yucca argospatha*, a fine species, allied to *Y. Treculeana*, has flowered at Grenoble, and is remarkable for the satiny-white undulated bracts of its inflorescence. *Cotoneaster congesta* and *C. prostrata* are two species introduced by Mr. Saunders, both North Indian, and desirable as dense-growing dwarf shrubs, the former, evergreen, with globose berries ; the latter, sub-evergreen, with roundish-turbinate berries. *Garrya Thuretii*, grown in the garden of the Paris Museum, and noted as a hybrid between *G. elliptica* and *G. Fadyenii*, is said to be hardy, or nearly so ; while from the French gardens we also get *Prunus Laurocerasus macrophylla*, the Versailles Laurel, remarkable for its vigour, and for the size of its leaves, which frequently measure 10 in. in length.

The group of out-door Perennials has yielded us several choice acquisitions. We have gained, for instance, *Lilium Maximowiczii*, a Japanese slender-growing Lily, with drooping scarlet flowers, spotted with black-purple ; and *Calochortus uniflorus*, a lovely little half-hardy plant, with pale pink flowers, coming from Santa Cruz—these amongst bulbs. *Clematis cethusifolia* is a pretty sub-shrubby climber, of dwarfish growth, with tubular bell-shaped yellowish-white flowers. *Acanthus longifolius*, a Dalmatian species, is a fine herbaceous plant, with large pinnatiparted leaves, rosy flowers, and whitish spiny bracts, veined with green. *Hoteia japonica variegata*, from Japan, resembles the type in all respects, but having red-stalked leaves, with the leaflets marked by a golden reticulated variegation. *Iris stylosa*, a slender Algerian plant, with large violet-coloured flowers,

marked with yellow bands, is a welcome addition to a favourite family. *Pyrethrum Tchihatchewii*, from Asia Minor, may be recorded rather for its utility than its beauty; it is a prostrate plant, with finely cut leaves, adapted for clothing with the freshest verdure lawns and banks which may be exposed to exceptional drought.

From these we pass on to Rock Plants, and here we have some true gems to chronicle, such as *Iberidella rotundifolia*, of densely tufted habit, with rosy-lilac yellow-eyed flowers, from the Alps; *Dianthus neglectus*, also from the Alps, two or three inches high, growing in tufts, with great bright rosy flowers; *Lychnis Lagasca*, from the Pyrenees, forming hemispherical masses of rosy-pink blossoms, like those of a *Silene*; *Primula pedemontana*, of the Swiss Alps, auricula-like in habit, with large rosy-purple flowers; *Androsace pubescens*, another denizen of the Alps, forming a mat of green leaves, overlaid with pure white flowers; and finally, *Nertera depressa*, a densely tufted Antarctic mountain herb, inconspicuous while in bloom, but exceedingly ornamental when studded with its globose orange-coloured fruits, of the size of small peas.

New Greenhouse Plants are more numerous, and we must pass over many having more or less interest attaching to them. *Passiflora Munroi*, a garden hybrid, is a fine creeper, with three-lobed leaves, and violet-coloured flowers, having the coronal ray purple barred with white. *Tetranthera Lhuysii*, from the French gardens, is a laurel, with oblong, slightly undulated leaves, elegantly variegated with yellow, greenish yellow, and deep green, while the petioles are of an intense red. The *Aralia Sieboldii aureo-marginata* furnishes a well-marked and distinct yellow variegated form of a fine Japanese evergreen shrub. *Toxicophlaea spectabilis*, a Natal apocynaceous plant, remarkable for its first-sight resemblance to an *Ixora*, is an evergreen shrub, producing terminal close heads of white flowers, and might probably be grown into a handsome specimen. *Mackaya bella* is a very pretty, slender-growing South African acanthad, producing a profusion of campanulate flowers of a pale lilac colour, transversely pencilled in the throat with delicate purple lines. *Salvia involucrata Deschampsiana*, remarkable for its close, ovate, spike-like heads of inflated-tubed, bright rose-coloured flowers, has been found in the French gardens, and would probably be a good decorative plant. *Cordyline indivisa latifolia* is a very broad-leaved form of this finest of all Cordylines. *Phormium tenax Veitchianum variegatum* is an elegant golden-striped variety of the smaller-growing form of broad-leaved New Zealand flax. *Pelargonium hispidum* is a handsome, free-flowering species, quite distinct from the usual cultivated types, with palmatisid leaves, and large purple flowers having two broad upper and three narrow lower petals, and is one of many which are well worth taking up by the breeder. *Gymnothrix latifolia*, an elegant Montevidean tall-growing perennial grass, perhaps requiring protection in winter, but otherwise quite adapted for the open garden, grows 9-10 ft. high, and has elegant catkin-like nodding flower-spikes. We can only mention *Encephalartus grandis* and *plumosus*, and *Macrozamia excelsa* and *Denni-*

soni as being fine South African Cycads; and pass on to Greenhouse Succulents, amongst which we find *Agave Regelii*, *A. De Smetiana*, *A. Besseriana hystrix*, *A. pectinata*, *A. Leguayanana*, *A. horrida*, and *A. Nissoni*, all occurring as moderate-sized manageable species, the last having the green leaves marked with a deep yellow line up the centre. *Cotyledon fulgens* is a handsome Mexican species, belonging to Echeveria (which modern botanists permit Cotyledon to swallow up), and produces a panicle of nodding racemes of bright coral-red flowers, yellow at the base. Finally, in *Stapelia hystrix* we have a remarkable South African plant, with star-shaped sulphur-coloured flowers, marked with transverse purple bars, and studded with awl-shaped processes tipped with purple. We must reserve the Orchids and Stove plants for a subsequent page.—M.

DAHLIA IMPERIALIS.

HEN Dr. Regel, in 1863, figured the *Dahlia imperialis*, which had just then been introduced from Mexico by Roezl, he remarked that he had read Roezl's description with a somewhat incredulous smile,—such as might be indulged in by the reader when looking on his own figure of the plant, representing the white bell-shaped lily-like blossoms, with a pyramidal hundred-flowered candelabrum-like inflorescence. Roezl indicated in this new *Dahlia* a sensational plant, bearing on a pyramidally-branched stem from 150 to 200 large nodding flowers like those of yuccas or gigantic lilies, and noted it as the most beautiful and valuable of his introductions. A quantity of the roots received at the Botanic Garden of Zurich, in May, 1862, were planted in the open ground; the plants soon reached 5 ft. to 6 ft. in height, but the flowers were late in forming. The stately growth, and large doubly or almost triply pinnate leaves, it was observed, made it at least as beautiful a leaf-plant as the most effective of the *Wigandias*, *Solanums*, and *Nicotianas*, so highly prized, while, as soon as it unfolded its flower panicles, it was seen to far surpass the most ornamental of them all. Since that time, the plant has spread over the Continental gardens, but was little known in England till 1868, when Mr. Bateman brought home roots from Cannes, where, about the beginning of November, he met with it in great beauty. It is naturally a late-flowering plant, and thus in our climate is useless for out-door purposes; but it forms a grand and novel subject for the conservatory during the autumn season, requiring, however, a temperature somewhat above that of an ordinary greenhouse to secure the development of its flowers.

Naturally this *Dahlia* grows to a great height—12 ft. to 20 ft., before developing its flowers, and this was felt to be an objectionable characteristic. Grown in a light orchard-house through the summer, and removed in autumn to a stove to perfect the flowers, the plants cultivated at Chiswick, where our figure was made, reached the height just indicated, but having long bare stems below. Mr. Alfred Salter, of the Versailles Nursery, Hammersmith, has, however, hit upon a satisfactory mode of counteracting this tendency. He took grafts of the succulent stems



in the month of May, and united them by herbaceous grafting, each to a tuber of one of the dwarfest liliputian dahlias. The plants thus formed have, during the past autumn, blossomed with him at a height of 8 ft. or 9 ft., forming a pyramid of perfect symmetry, with the large and much divided leaves spreading out on all

sides at the base, while the stem was freely branched in the upper half, where it was furnished with numberless flowers. Treated in this way, *Dahlia imperialis* becomes a thoroughly distinct and remarkably handsome decorative plant for late autumn in-door purposes. The plants go on developing in an ordinary greenhouse until chilly weather comes on, and then it is that a mild heat is necessary to secure the opening of the blossoms, which, as above described, are drooping, with the florets somewhat converging, which seems to give the flower-heads a lily-like aspect. Two varieties have been observed, one with the flowers entirely white, the other with a red spot at the base of each ray floret.—M.

THE PEARS AT TORTWORTH COURT.

Y subject may be fitly introduced by the remark that the experience gained in any given locality is not sufficient to enable us to determine with certainty the real merits of the different varieties of our hardy fruits.

There are many contingencies that arise to vary the results of our investigations, and they may help to enable us to account for much diversity as to quality. There are to be considered, for example, the situation of the garden, the amount of shelter, the physical character and mineral constituents of the soil, and the mode of training and pruning, all of which exercise an abiding influence.

Much of late years has been written in favour of the Quince as a stock for the Pear; but from what I can learn, the excitement in its favour is abating, and experience is giving us an insight into its true value. I cannot help thinking that the discussion was mixed up with a great deal that was useless, and frequently altogether beside the mark. All our Pears are worked on the Pear stock, and I am thankful to say that such is the case, for otherwise I fear that our supply would not equal the demand. Our kitchen garden is situated 300 feet above the sea level, and is only slightly protected, being exposed to the severe hurricanes from the British Channel. With these prefatory observations, I proceed with my descriptive and annotated list, which I shall continue as opportunity offers:—

Alexandre Lambé.—Under the majority of circumstances, the quality of this variety cannot be considered to rank higher than third-rate; hence it is undeserving of a place even in an extensive collection. Judging from appearance, it would be pronounced first-class, but it is the very reverse of this, being gritty and dry-fleshed. Admirably adapted for the market, where appearance is more frequently valued than quality. This is a hardy kind, and a profuse bearer, the fruit weighing about 4 oz., and beginning to ripen about the 20th of October.

Beurré d'Amanlis.—There can be no doubt of this variety being one of our best autumn pears—possibly the very best, as it possesses all the qualities that can be desired, gushing with juice, and rich in sugar. It begins to ripen about the 10th of September, and weighs from 10 oz. to 12 oz. The habit is vigorous, and it is a great bearer. The *Beurre d'Amanlis panachée* has no distinguishing character, beyond that of the fruit being striped with yellow.

Beurré de Rance.—This is a pear of varying qualities, and exceedingly uncertain as to flavour; in some seasons it is delicious, and at other times insipid. When grown as an open standard, the fruit rarely, if ever, shows its true character, unless it may be in some favoured locality. In the majority of cases it ought to be trained on a south wall, where it not only produces fruit of greater size, but brings out fully its valuable properties. Weighs 8 oz., begins to ripen towards the end of December, and goes on progressively till the middle of February.

Beurré Giffard.—Whore early pears are valuod, this delicious variety should not be omitted. It begins to ripen during the second week in August, and continues in uso for about ton or fourteen days. Tho usual waight is 3 oz. Probably it may be a littlo inferior to Fondante de Cuerne, but I think there is room for a differonco of opinion. As both ripen at the same time, theron can be no harm done whichever is selected.

Beurré Goubault.—Like the preceding, this variety cannot be too strongly recommended. It boars freely in exposed situations, is juicy, and contains a large amount of sugar. Among the many kinds that come into use at the same time, it has few, if any, equals. Tho usual time of ripening is about the 25th Septembor, and it weighs from 3 oz. to 4 oz.

Beurré Bretonneau.—This is really a worthless variety, for, whether grown as a standard or trained against a wall, it never ripons. I havo kept it till the end of July without its showing any signs of maturation. It is somewhat singular that nurserymen should still retain it in thoir catalogues, and describe it as an excellent late kind.

Beurré Sterckmans.—Unless during our warmest summers, this excellent pear never shows its real qualities, when grown as a standard; it deserves, and ought to have, the protection of a wall. The flesh is crisp, juicy, and sugary. It is very productive, weighs from 9 oz. to 10 oz., begins to ripen during the first week in Decomber, and continues in use about a month.

Beurré Duhaume.—This pear ranks amongst our very best varieties. There may be several of equal morit, but it has few superiors. It is crisp and juicy, very sugary, begins to ripen about the middle of November, and weighs 6 oz.

Beurre de Wetteren.—The highest rocommendation this pear possesses is its handsome appearance; it ripens about the middle of October, and weighs from 9 oz. to 10 oz. As so many first-class pears aro in season at the same time; it is unworthy of cultivation.

Beurré d'Aremberg.—We have here a variety that claims special attention, the fruit being melting and juicy, and very sugary, combined with an agreeable acid; it begins to ripen at the middle of November, weighs from 6 oz. to 7 oz., and keops in condition till the end of December. When confined to a wet situation, the fruit is apt to be small and covered with black spots, accompanied by canker.

Beurré Winter.—Beyond being a large showy pear, weighing from 11 oz. to 12 oz., this has nothing to recommend it. I havo heard it spoken of in more complimentary terms, but have not been able to discover any merits that would induce me to continue its cultivation.

Beurré Bosc.—When grown as a standard, the flesh of this pear is crisp, and only half melting; trained against a wall, the quality is all that the most fastidious can possibly desire. A large handsome fruit, weighing 11 oz., and coming into use during the first week in November.

Beurré Diel.—I have never found this pear, when grown as a standard, to possess more than a second-rate quality. When grown against a wall, the case is very different, as the flesh then becomes melting, juicy, and sugary. This variety ranks amongst our largest dessert pears, weighing from 14 oz. to 15 oz.; it begins to ripen during the first week in November.

Beurré Gris d'Hiver.—About fifteen years ago this variety was brought into notice, and describod as a real acquisition, while a more worthless kind does not exist; it is quite as bad as Beurré Bretonneau, and may therefore be expelled from British gardens. I do not say so without experience. I have trained it against a south wall for a number of years, planted in a well prepared bordor, and have kept the fruit till the end of June, and then it was as hard as when picked from the tree.

Beurré Langelier.—I have still retained this kind in our collection, although at best only third-rate. It is not only deficient of sugar, but possesses a disagreeable acid. Weighs about 8 oz.

Beurré Léon le Clerc.—This can hardly be called a first-class fruit, although the flesh is melting, juicy, and to some extent buttery. Though deficient in sugar, and often soapy, yet during very warm summers the quality is all that can be desired. The usual weight is from 8 oz. to 9 oz.; it begins to ripen about the 17th of October, and continues to keep a succession for two weeks. Occasionally it will be found very useful in filling up the gap between other varieties.

Beurré Derouineau.—Under the most favourable conditions this variety possesses only a third-rate quality. It weighs from 6 oz. to 7 oz., is a handsomo fruit, and readily attracts attention, but the flesh is dry and coarse; begins to ripen about the 6th of October.

Beurré Superfin.—However small the spaco, no collection of pears should be without this variety; it has a handsome appearance, and weighs from 8 oz. to 9 oz. In the truest sense of the word this is a melting pear, gushing with juice, sugary, buttery, and fine-grained, these

qualities being so combined as to produce a delicious flavour ; it ripens in the middle of October, and continues in use to the middle of November.

Beurré, Brown.—This variety bears freely as a standard when planted in a warm situation, but the quality is only second-rate. When grown against a south wall the flavour is delicious, melting, sugary, and buttery, combined with an agreeable acid ; it weighs from 8 oz. to 9 oz., and begins to ripen usually about the 20th of October.

Beurré, Easter.—This is one of our most uncertain pears, whether as regards the flavour, or the time of ripening. In some seasons it comes into use as early as the end of November, and in others not till the middle of January, or beginning of February, while very many of the fruit occasionally never soften at all, and those that do ripen are frequently so insipid as to be unfit for dessert. When grown under the protection of a wall these defects rarely appear. The quality then, with some few exceptions, is melting, juicy, and sugary. The usual weight attained is from 8 oz. to 9 oz., and I have frequently known a single fruit to exceed these weights.
—ALEXANDER CRAMB, *Tortworth.*

PERPETUAL-FLOWERING OR TREE CARNATIONS.

THESE beautiful and most useful plants may be increased by cuttings or by layers. The simplest way of getting up a stock of them is to place the old plants in a gentle heat, at once, and then early in February to take off the cuttings, put them in around the edges of 3-in. pots, in equal parts of loam, leaf-mould, and sand, water well, and plunge in a gentle bottom-heat not too damp. When they are rooted, pot them off singly in 3-in. pots in a mixture of loam, coarse sand, and rotten dung, and keep them in a close space until well established, after which harden them off gradually, and place them in a cold frame. In April, if the weather permits, plant them out on a piece of open ground, which has been well dressed with soot, dung, and lime, and trenched from 2 ft. to 3 ft. deep. Place a 4-ft. stick to each plant, which is to be regularly tied up, so that the winds and rains do not break it. By the middle of September it will be in a fit state to transfer to a 6-in. or 7-in. pot.

After potting, the plants must have a good watering, and for about a fortnight should be placed in a shady place, being also syringed overhead twice a day in bright weather. When they are again established, place them in the sun on a bed of ashes, or on boards, but as soon as the autumn rains come on, get them under cover, giving them plenty of air. They should then commence flowering, and continue all through the winter and spring months, if assisted with a little fire heat and with liquid manure, which latter, when they are well established and the pots get full of roots, they may have once a week. They delight in being plunged in sweet dung, so as to keep the roots cool, and will root through the bottom of the pot, and over the top. Occasionally dissolve 1 oz. of carbonate of ammonia in a gallon of water, and water with this solution. If the plants are in a healthy state, the feathery roots may be seen on the surface in the course of a few days, after each application of the ammonia.

The plants must never be allowed to get root-bound, which is the point where many good growers have failed with them. They must be kept shifted on, as soon as the pots get filled with roots, and should be placed for the winter in a dry, light, airy house, where they can get all the sun possible, without being

exposed to draughts. If they get over-wet, they will suffer from mildew and canker. In case mildew appears, sulphur should be applied, while for green-fly they should be promptly washed with soft soap and water.

Every person who has a greenhouse should grow a few of the varieties, for they are very beautiful, and may be had in flower all the year. I add the names of a dozen of the best I know :—*Bride* (not Hodge's), a fine serrulated white flower, very sweet and free; *Covent Garden Scarlet*, the finest of all where it does well, but it is subject to canker; *Dragon*, scarlet, good habit and free; *Boule de Feu*, a fine scarlet variety; *Prince of Orange* (Perkins'), a very promising yellow variety, free; *Jean Bart*, a compact-growing scarlet; *Oscar*, yellow; *Beauty*, scarlet flake; *Duke of Wellington*, scarlet bizarre; *Henshaw's Scarlet*, in the way of La Grenadier; *Lee's Scarlet*, a free serrulated variety; *Atinie*. I can testify that these are all good.—W. HOWARD, *Balham*.

PASSIFLORA MACROCARPA.

URING the past spring, I planted, in a brick box at the end of a pine stove, a young plant of *Passiflora macrocarpa*. The fruit which I send you is one of five now (November 22) maturing upon the plant. It weighs 4 lb.

12 oz., and girths lengthwise 26 in., and round the middle 19 in. My object in sending this fruit is to ascertain whether the *P. macrocarpa* is really worth growing as a dessert fruit. A short time ago, I sent one to the family; and this was reported to be not at all good, and quite unlike the fruit of the *Passiflora edulis*.—WM. MILLER, *Combe Abbey Gardens*.

[The fruit above referred to somewhat resembled a large, bulged, and somewhat angular vegetable marrow. It was rather over-ripe, and had in consequence burst during transit, showing an apparent tendency to split into valves. The colour was a deep yellow; the flesh was thick, white, almost tasteless, while the juice and the pulpy matter surrounding the seeds were pleasantly acidulous, so that the fruit might be converted into an agreeable conserve or compote, for which it seems better adapted than for eating in the raw state. We abstract the following additional particulars from Dr. Masters' account of the plant :—

"In habit and general appearance *Passiflora macrocarpa* is almost identical with *P. quadrangularis*; so that in the early stages of growth it is impossible to distinguish the two, but in the adult state the leaves of *P. macrocarpa* are of a more rounded outline, and usually somewhat smaller than those of *P. quadrangularis*; while the stipules are much larger, and taper at the base into a broad stalk. *P. macrocarpa* has, moreover, rounder, larger, more serrated bracts; a shorter, shallower calyx tube; violet (not pink) petals, which do not exceed the sepals; outer coronal rays which considerably exceed the petals, and the succeeding coronal rays filamentous, while in *P. quadrangularis* they are shorter and tooth-like. The ovary in *P. macrocarpa* is oblong or obovoid, not ovoid, and the fruit is much larger, oblong, obtuse, depressed at both ends, and longitudinally sulcate; while that of the true *P. quadrangularis* is ovoid, and of the size of a swan's egg.

"This Passion-flower was discovered by M. Wallis, on the banks of the Rio Negro, between Manaos and Barcellos, about 1864, and was also found by Dr. Spruce in Peru. At that time M. Wallis wrote, that the species acquired unusual dimensions, and that the fruits, which were highly esteemed in the country, attained a weight of 8 lb. Respecting the former habitat, Dr. Spruce remarks :—'If M. Linden's collector sent from the Rio Negro a large-fruited

Passiflora, I should say it had certainly been raised there from seeds brought from Peru. No such Passiflora, either wild or cultivated, was known in that region in my time; but since steamers have run up to the very roots of the Andes, I learn that the Brazilians have got from Peru the Banbonage, or Panama-hat Plant (*Carludovica*, sp.), and many others. In the lower eastern Andes a large-fruited Passiflora is commonly cultivated under the name of 'Tumbo,' and the same species is still more largely grown on the western side of the Andes, in what is called the 'coast region' of Peru. At Guayaquil, what seems the same kind is called 'Badéa,' but it may be distinct from the 'Tumbo.' These Passifloras have a fruit 9, or even 12, inches long, very like that of the common Papaw, but blunter at each end, and very much heavier, bulk for bulk. There is a variety with longitudinally sulcate fruit. Not only are the seeds, enveloped in sweet mucilage, eaten, as they are in the common Granadillas, but the thick flesh is also eaten, after the manner of Melons and Papaws, to both of which its flavour slightly assimilates it, although it used to remind me more of a soft sourish-sweet apple. In Peru the 'Tumbo' is commonly trained over a horizontal trellis-work, raised high enough to allow of a man walking under it erect, but sometimes much higher, and only accessible by means of a ladder. The finest plants and the best-tasted fruits I have seen were grown on the river Chira, in lat. 5° south. The priest of Amotape—a small village on that river—had a plant that must have covered 50 square yards. I have several times reposed in my hammock under its shade, and regaled on its fruit. 'That was in 1863.'

"We have thus the testimony of Spruce and Wallis that the fruit of *P. macrocarpa* is highly esteemed in tropical South America. As grown in this country, it is more watery and less perfumed than that of *P. quadrangularis*. It is surprising that, commonly as *P. quadrangularis* is grown, its fruit is so seldom seen on the dessert-table in the form of a conserve or jam. We know of few confections of that nature of a richer flavour, and warmly recommend growers of *P. quadrangularis* or *P. macrocarpa* to avail themselves of the fruit. The following directions to the cook may be serviceable:—Cut the ripe fruit into slices, crush the pulp surrounding the seeds with a spoon, so as to extract the juice, then remove the seeds, boil the slices till tender, and pass them through a sieve; mix the juice with the pulp, and add white sugar in the proportion of half a pound to a pound of pulp, or thereabouts, and boil down to a proper consistence. A compote would be still better."—ED.]

THE NEW CHRYSANTHEMUMS OF 1869.

BLOOMING, as these fine autumnal flowers do, at a season of the year when there are few opportunities for their being exhibited, there is, naturally enough, some difficulty in compiling a complete list of novelties,—as, if one would know anything of them, they must be sought after. However, having regard to the fact that the main of the new varieties find their way into the hands of Messrs. Salter and Son, Versailles Nursery, Hammersmith, for distribution, what they have to offer may be taken as representing the cream of the new flowers of the year. The major part of these I had an opportunity of seeing when in bloom, and can therefore speak confidently as to their merits.

Of the ordinary large-flowered, or Chinese Chrysanthemums, the Messrs. Salter have a batch of eleven new varieties, as follows:—*Beauty of Stoke*, flowers of great size and finely incurved; colour, full amber yellow, with a tint of red thrown over it as the flowers age, gradually deepening till they fade; full, and of good substance, with broad massive florets. *Duke of Edinburgh*, rosy lilac, with

pale centre when fully incurved, a flower of remarkably fine quality, and of great size, evidently destined to play an important part on the exhibition-table in the time to come. *Globosa*, Indian red, of a dark hue, with broad stout florets, formed into finely incurved flowers ; the habit is unusually dwarf, and the growth compact. *Marginata*, one of the anemone-flowered class, the guard-petals blush at the base, with an edging of deep rose ; the centre rose, but fading to white when the flowers become fully developed, while the rose in the margin of the guard-petals becomes more distinct ; a fine addition. *Meyerbeer*, pale rosy chocolate, lighter towards the centre ; the flowers of medium size, and the florets remarkably broad, finely incurved when fully developed. *Miss Hope*, a very beautiful incurved flower of a delicate lilac tint, with white centre, paling to white as the flowers age ; it is likely to be a great favourite. *Mrs. Wreford Major*, deep rose, a reflexed flower of good quality, and promising to be very useful for pot cultivation, from its compact, bushy growth. *Norma*, one of the half-open petaled varieties, of an ivory-white colour, with stout stiff florets, dwarf, compact habit, and likely to be very useful as a pot plant. *Ondine*, a flower of some novelty of character, the base of the florets cream, tipped with rosy lilac ; the blooms are finely incurved, distinct, and full. *Princess Louise*, another of the anemone-flowered type, the colour a delicate rosy blush, with high close centre, and, like *Marginata*, a good addition to this class. *Virginalis*, equally fine as an anemone-flowered kind ; colour white, centre close and high ; somewhat late in blooming.

It would seem that this season brings no addition to the Pompon class. Evidently the small-flowered Chrysanthemums are not so much regarded by raisers as those of the large-flowered type.

Of the Japanese kinds, Messrs. Salter have produced some fine new flowers, showing that the improvement of these curious flowers is being most successfully prosecuted, and that from the time that Mr. Fortune introduced them from Japan, up to the present moment, our florists have not been unmindful of the peculiar functions they discharge in relation to plants. Of the new varieties a few are of the ribbon style, and it is curious to observe that in the case of nearly all these flowers, they come with an outside ring of quilled florets of a tubular shape, with about an inch of the top flattened out. The new kinds comprise :—*Aurora*, one of the curiously twisted ribbon flowers, though only partially curled ; colour bright orange, fine and distinct. *Chang*, another of the twisted and curled ribbon flowers ; colour red, with yellow at the back of the florets, which are very broad, forming large flower-heads. *Emperor of China*, with the florets in the form of slender quills, the centre of the flower dashed with reddish orange, and pale buff tips ; the outer florets blush, those on the exterior of the flower not so much quilled. *Giant*, a most extraordinary flower, and a decided novelty ; colour a pale lilac, with the florets of a quilled form ; the diameter of this flower reaches fully one foot, and I am informed that while expanding, the florets lengthened fully an inch each day. *Gold Thread*, golden amber ;

resembling a mass of golden thread-like florets, or long quills ; very curious and novel. *Colonel Hemery*, the blossoms form a semi-globular mass of straight, stiff, long, narrow, strap-shaped florets, and being of a deep golden yellow, they are exceedingly showy. *Gloriosa*, with fine large flowers, formed of long, loose florets in the shape of a flattish head ; colour yellow, slightly tinted with red in some stages, but eventually becoming almost entirely yellow. *Helen McGregor*, rich deep chestnut red, the flower heads very full and fringe-like. *La Chinoise*, chestnut red, with yellow tips, and producing large flower-heads ; a very decided improvement on similar flowers of the same character. *Mandarin*, very fine, the colour canary-yellow ; a great advance in point of colour in this section, the hue being as deep as that in *Jardin des Plantes*, and the broad, ribbon-like florets curiously twisted ; very fine. *Meg Merrilies*, pure white, with sulphur in the centre, the florets tube-shaped at the base, but flat at the ends, and much jagged, and so forming large characteristic heads. *Negro*, very dark maroon, of a deep and yet bright hue of colour ; very showy and distinct ; one of the curled and twisted, narrow-petaled type. *Rob Roy*, very distinct as to colour, the tubular portion of the florets being of a dull purplish red, and the flattened, expanded parts, which show the inner surface, of a pale amber or buff. *Sol*, clear, wax-like yellow, with long, straight, strap-like petals, showy and novel. *The Sultan*, a very fine flower, which received a first-class certificate from the Floral Committee on November 16th ; a ribbon flower of a bright rosy lilac hue, very large and full, and a great acquisition as a decorative plant. *Viceroy of Egypt*, bright rosy lilac, with broad ribbon-like florets, distinct and good.

To rightly appreciate the value of these Japanese Chrysanthemums as decorative agents, they should be seen when the flowers are fully developed, and at their best. Those who look upon them when the flowers are yet opening are apt to think lightly of them, and condemn them in consequence. The fact that many of them bloom later than the large-flowered varieties is not among the least of the claims they have on popular patronage.—*Quo.*

NEW PEAS.

NE of the most important of our esculents is the Pea ; and without any disparagement of certain good old favourite sorts, it may fairly be stated that during the last few years, commencing with the labours of the late Dr.

 Maclean, a wonderful improvement in the quality of the garden varieties has taken place. Some of Maclean's sorts, such as Little Gem, Advancer, Premier, &c., have proved to be grand acquisitions, and are not even yet surpassed in their respective classes ; but improvements of this kind are stimulative, and since the advent of those just named, other novelties, bearing high characters on good authority, and for which horticulturists are indebted to Mr. Laxton, of Stamford, have made their appearance.

Subsequently to the production of these later novelties, the Messrs. Carter

have taken up the raising of New Peas, and one of their first results represented in the annexed figure, is that which is called *The Cook's Favourite Pea*, or



Hundredfold. This was obtained by crossing Laxton's Prolific with Ne Plus Ultra. It is described as a prolific late variety, about 14 days later than Supreme, as growing about 4 ft. high, and as producing abundantly its remarkably fine pods,

which are slightly curved, of the deep colour of *Ne Plus Ultra*, and carrying a fine bloom. When cooked, the peas are of excellent quality, and of a dark green colour, the ripe seed being of a pale olive-green. This sort is noted by the *Gardeners' Chronicle* reporter, from personal inspection, as likely to become popular both for marketing and garden use. It is to be let out for the first time this season, and we believe is in the hands of the Messrs. Carter and Co., and Messrs. Hurst and Son. To the former of these gentlemen we are indebted for our woodcut representation.—M.

THE LADY'S SLIPPERS.—CHAPTER I.

THE species comprising the orchidaceous genus *Cypripedium* are universal favourites with plant-growers on account of their neat habit, and the pleasing combination of colours in their flowers, while the very peculiar calceiform lip, whence the genus is popularly known by the name of Lady's Slipper, forms an exceedingly interesting portion of their structure.

Cypripediums differ from the majority of ornamental orchids in not having pseudobulbs. They are all of dwarf compact habit, and remarkably handsome when in flower; while, in addition to their floral beauty, many of them have variegated leaves of a remarkably ornamental character, which renders them attractive even when destitute of blossoms. The species are found in the East Indies and in the Eastern Islands, in South America, in North America, and in Europe. The European and North American species are deciduous, and remain dormant during the winter months, whilst the Indian and South American species are evergreen. These have been divided by some botanists into two genera, under the respective names of *Cypripedium* and *Selenipedium*, but others regard the differences between the two groups as insufficient to warrant the separation, and in the few remarks here offered I shall adopt the latter view, and treat of them all as *Cypripediums*.

The ease with which these plants may be grown, combined with the little space they require, and the long time their flowers retain their full beauty, are considerations which specially recommend them to the notice of amateurs who have but little stove accommodation. Even those who do not grow a collection of orchids should introduce some few of these plants into their mixed collections, for I may add that *Cypripediums* succeed better when grown with a miscellaneous collection of plants, than perhaps any other genus of their order. Those of them which are natives of Moulmein and the Indian Islands require an abundance of heat and a moist atmosphere, in order to induce vigorous growth such as may enable them to fully develop their beauties; they should, therefore, be grown in the East Indian orchid-house, or in a stove with other plants requiring a similar temperature. Those, on the other hand, which come from the more northern parts of the Indian mainland, and also the South American kinds, will thrive in a much cooler house; indeed, some of them succeed admirably in a close green-

house. The European and North American kinds can be grown in the green-house, or better in a cool moist pit. Under these three heads, then, I shall offer a few remarks, which, I trust, may be of service to those who already possess some of these plants, and may induce others who have hitherto refrained from growing them through fear of mishaps, to add them without delay to their collections, since the peculiar beauties of colour and form which they present will give a fresh charm to the stove and green-house.

The soil for their successful culture should be peat and chopped sphagnum moss, to which may be added a little good leaf-mould and silver sand. In the case of the European and North American species, a further small proportion of good turfey loam will be a great advantage. The pots should be well drained, and the plants should not be set above the rim of the pots, as is done in the case of most other orchids, but they should be planted slightly below the rim, as in potting ordinary stove or greenhouse plants. In the growing season the atmosphere should be moist, and an abundant supply of water must be administered to the roots; even during the winter months they enjoy a liberal supply of that element, which, however, should never be applied to their roots at a lower temperature than that of the atmosphere in which they are growing.

Cypripediums, as before remarked, have no pseudobulbs, and consequently have no means of subsistence if water is withheld from them for any length of time. If subjected to such treatment they will soon shrivel up, and to recover them from this condition, if indeed they escape with their life, will be found to be a work of extreme difficulty. At the very least, their beauty will be destroyed for a considerable time.—B. S. WILLIAMS, *Victoria Nursery, Holloway*.

AERATED VINE BORDERS.

THE success of the Grapes shown by Mr. Johnston at the International Fruit Show in Edinburgh in September last, and grown in aërated borders, will make some of the unbelievers begin to think that there is something in the system after all. When Mr. Fowler, of Castle Kennedy, commenced to grow and to show his fine Grapes from aërated borders, I stated in an article in a contemporary that I believed he was on the right track for success, for I had proved that the system was a sound one. In forming the new Kitchen Garden here the principal range of vineyards was necessarily placed in a very low situation, and the subsoil was a strong red clay. One of the vineyards, a very large one, was for growing Muscats principally, and I had the borders aërated, by placing two rows of 4-in. pipes in a chamber outside the border, connecting it by air drains at every 4 ft. with the inside space where the flow and return pipes were placed. The Muscat and other Grapes planted in this vineyard were 12-year old vines brought from the old gardens; and the air-heated border was made on purpose to give them a better start in rooting than they could have had in an unheated border. These vines bore a good crop the second year after planting, and for the

last eight years have never failed in producing a full crop. Both in this year and last the Muscats were particularly well coloured in September, although forcing was not commenced before the beginning of March. The Golden Hamburgh and Grosse Guillaume have likewise in this vineyard produced some of the finest-coloured grapes I have ever seen of these varieties. Had young vines been planted in this house, when the border was first made, I have no doubt but that some first-rate show grapes could have been cut from them ; as it is, fair-sized show branches have been obtained from them every year.

Some doubts have been expressed by grape growers as to vineyards with aerated borders keeping up the vigorous habit of the Vines for any length of time ; but if they fail to do so, this can only occur through mismanagement. The system must be a sound one, and especially commends itself to growers of grapes in situations which are low and damp, and where the subsoil is bad. For very early grape forcing, bottom heating must be beneficial, by keeping up a due reciprocity of temperature between the roots and branches. No doubt first-rate show grapes are grown on vine borders where no extra expense has been incurred in respect to drainage or heating, but this can only be done in exceptionally favourable situations.

The great secret in growing first-rate show grapes, and of keeping up a reputation for growing such, is to have always a house of young vines ready to take the place of others on the wane, which generally begins from the sixth to the eighth year after planting. The grandest branches for weight and size of berries are produced from young vines in the third or fourth year after planting, and which have never been allowed to bear any bunches till those particular years. Another way to obtain large bunches and berries, is to cut down a vigorous old or young vine, to allow it to make one rod only, and not to stop it till it reaches the top of the rafter. This rod must be pruned at the best and plumppest eye, and will produce an enormous bunch on the top, or two or three if wanted, for show. This was the plan that Speechly adopted to produce his 19½-lb. bunch of the Syrian grape. We see some particular grape-growers shine for a few years in showing good grapes, but unless they renew their borders and vines frequently, so as to keep up a succession, they soon sink into the general ruck of cultivators.
—WILLIAM TILLERY, Welbeck.

THE TUBEROSE.

HIS deliciously fragrant plant, although it has been for very many years cultivated in our gardens, is not so extensively grown as it deserves to be ; indeed, I may say that it is not even so well known as it should be, and its culture is, perhaps, even less understood. Having had some little experience in the culture of this delightful flower, I propose to offer a few brief remarks respecting it.

Tuberoses are imported annually, much after the fashion of Dutch bulbs.

They generally arrive in this country during the months of February and March. In selecting the roots, the largest and firmest, and those with few offsets, should be chosen,—indeed, the fewer offsets the better. In order to have a succession of them in flower, it is requisite to start them into growth at different intervals. To accomplish this successfully, all the bulbs, even those that are to flower in the open air, should be started in pots. The first batch is potted into 6-in. pots as soon as it arrives, and others are potted at intervals during the months of April and May, in very rich soil, previously prepared for the purpose. Before potting, remove all loose skin, offsets, &c., and be careful, in potting, not to cover the entire bulb with soil, otherwise it will be very liable to decay. After potting, place them in a gentle hot-bed, water very sparingly, and keep them pretty close until the flower-stem begins to appear, when it is requisite to give air more liberally, in order to prevent the plants from getting weakly and drawn. These attentions, together with a plentiful supply of light, are the most essential points in their culture, for if they become weak and drawn they will produce but few blossoms, while if they are grown sturdily they will flower freely.

As the plants advance in growth, water more liberally, using at times a little stimulant; give abundance of air, and constantly keep them neatly tied up, otherwise they will soon grow crooked and deformed. When sufficiently advanced in growth, remove them to the stove, greenhouse, or any other suitable place where there is plenty of light. Here they may remain until their blossoms expand, when they may be removed to the drawing-room or conservatory, and when set amongst other exotics they will, by their beauty, add their quota to the gay furnishing of the house, and shed abroad their fragrant odours every morning and evening, when the house is closed, in a way that can only be conceived by those whose good fortune it is to grow them well.

Those grown for the open air should be all potted and started into growth in a gentle hot-bed, and transplanted out when secure from frost. I find they succeed much better by this method than by planting out in the open air in a dormant state, for, although I have seen them succeed tolerably well by that method in some seasons, yet on the other hand, I have seen many failures. No doubt in the south they will succeed very well planted out in the open borders in a dormant state, but by practising the method I adopt success is rendered certain.—EDWARD BENNETT, *Osberton*.

THE AMATEUR'S PAGE.

HE extreme beauty of the choicer *Chrysanthemums*, their variety, and the great perfection which has characterized their growth and bloom during the past season, will, no doubt, have considerably raised them in the estimation of many growers, particularly of amateurs, who may be led to ask by what means so fine a growth and such a grand autumnal display may be secured. I propose to show that there are no mysteries whatever connected with

the matter ; that the means required are very few, and the culture very simple ; and that anyone having a glass-covered brick pit, commonly called a cold-pit, or even a common garden frame, may pass them through all their earlier stages as successfully as he who has every possible convenience—with this difference, that the cultivator with the more limited means must take time by the forelock.

From twenty-four to thirty good sorts will afford the amateur abundance of variety as to colour, and a great amount of interest and pleasure in cultivating and watching their development during the various stages of growth. If he has any friends who could supply him with cuttings from old cast-away plants, early in the season, say, towards the end of April, at the latest, he would commence under very favourable auspices ; but even if he has to resort to the growers for sale, the acquisition of such a collection will not be a ruinous affair. I will hereafter supply a short list of good sorts which I have proved, all of which, I believe, may be obtained for about sixpence each by the first week in May. Newer varieties will, no doubt, be desired in after seasons.

The earlier in May that the plants are procured the better will be the chances of after success, and the amateur should be very particular in asking for spring-struck cutting plants, for, as a general rule, they will in his hands be more manageable than older autumn-struck plants. The latter sometimes run lanky, and become hard-wooded at the base, and require a more complicated system of culture than a tyro may, perhaps, be master of, in order to grow them into dwarf stocky plants. For this reason, I recommend the spring-struck cuttings, as being more easily managed by beginners, who would also do well to explain their desires to the nurseryman, and ask him for well-rooted plants.

In describing, however simply, the necessary cultural operations, we cannot avoid the occasional use of technical gardening terms ; still such is the profusion of horticultural literature, and so greatly has the love of flowers been developed thereby, that I presume there are now few amateurs fond of flowers who have not become familiar with those of more frequent recurrence when describing the manipulation of pot plants. When, therefore, I advise that after the plants are received from the nursery, they should be turned out of the pots, and the state of the roots examined, I do not wish it to be understood that the amateur is to take these instructions literally, by shaking them out in any fashion and roughly dislodging the drainage and soil from the roots, but in the orthodox manner, by placing the palm of the hand over the surface of the pot, allowing the stem to pass between the fingers, gently inverting the pot upon the hand, and giving the rim a slight tap on the edge of the potting stand, when it will be found that the pot will lift off from the soil, and leave the latter in a compact and solid state. Then, if plenty of roots are to be seen around the outsides of the ball of earth, the plants are ready for a shift into larger pots ; but if few or no roots are to be seen, the pot is to be replaced, and the plants put into the pit or frame for a week or ten days longer, supplying them with plenty of ventilation, but slightly shading them from bright sun during the midday hours.—JOHN COX, *Redleaf*.

GARDEN GOSSIP.

ALREADY the note of preparation for the *Floral Campaign* of 1870 is sounded. The Royal Horticultural Society of London has issued its prize schedule for the year, and from it we learn that a series of combined Floral and Fruit Committee-meetings, and exhibitions more or less comprehensive, will take place on the following days, namely, January 19, February 16, March 2, 16*, April 6, 20*, May 4*, 18, June 1, 15*, July 6*, August 3, 17*, September 7, 21, October 5, November 2, December 7,—these at Kensington, those marked with an asterisk being important exhibitions; and on July 19 to 22, the Great Provincial Show at Oxford.—The Royal Botanic Society has announced two Spring Shows on March 30-1, and April 27-8, and three great Summer Shows on May 25-6, June 22-3, and July 6-7.—The Royal Caledonian Horticultural Society has fixed a Hyacinth Show for March 29-30, and a Summer Show (Roses) for July 13.—The Royal Horticultural Society of Ireland announces a Hyacinth Show on March 24.—The Manchester Grand National Horticultural Exhibition is to take place as usual in Whitsun week, opening on June 3, and closing on June 9.

— **W**E have in the *Macadamia ternifolia*, of Moreton Bay, a new Edible Fruit. The plant is proteaceous, and an evergreen shrub, or rather tree, with ternately whorled, oblong-lanceolate, spiny-margined, Brexia-like leaves, and a racemose inflorescence. The fruit is a kind of drupe, with a fleshy exterior, encircling a hard shell like that of a walnut, within which is a sweet kernel, the flavour of which has been compared to that of almonds. Young plants have been recently exhibited from the Wellington Road Nursery.

— **T**HREE is a fine specimen of the Ginkgo, *Salisburia adiantifolia*, at Whitfield, in Herefordshire, the residence of the Rev. A. Clive, which measures 7 ft. 2 in. in girth at 5 ft. from the ground, is 50 ft. 6 in. in height, and has a diametric spread of foliage of 40 ft. It is supposed to have been planted about 1776. At Messrs. Cutbush's nursery, Highgate, is a vigorous and beautifully symmetrical tree, also about 50 ft. in height. One of the largest trees is said to be growing in the garden at Hassop Hall, Bakewell, Derbyshire. Probably the oldest and highest Maidenhair tree in England is that in the grounds of Lord Ravensworth, Walham Green, which is 70 ft. high, and was planted in 1767.

— **A**NOTHER new Grape, *Melville's Perfumed Muscat*, has been raised by Mr. Melville, Dalmeny Park. It is said to be a good deal like the White Muscat of Alexandria, both in bunch and berry, but more golden in colour when fully ripe, and sharper, richer, and more perfumed in flavour; very thin-skinned, tender-fleshed, and dissolving in the mouth. Its most striking peculiarity is the delicate agreeable perfume which it possesses. It is said to have sprung from Snow's Muscat Hamburg, alias Black Muscat of Alexandria.

— **P**ONE of the perennial species of *Candytuft* are, according to Mr. G. Maw, so ornamental as that which takes its name from the Rock of Gibraltar, *Iberis gibraltarica*. Plants procured and sent home last April were almost continuously in flower up to November; and one specimen in the open border, which had been frozen hard three weeks previously, was on November 19 covered with delicate lilac flowers, the corymbs and individual flowers twice the size of those of *Iberis sempervirens*. It differs from all the other species in being a continuous bloomer, the lateral shoots outgrowing and hiding the old flowers as they decay.

— **A**CCORDING to the observations of Dr. Bull, the *English Elm*, in ordinary Herefordshire soil, grows more rapidly than that most vigorous-growing of all the varieties of the Wych Elm, the Chichester Elm—a tree that in suitable soil will often make shoots of from 6 ft. to 10 ft. long in a single year. The experiment, he says, has been made. "Some say that the English Elm won't grow well, but the fact is, they are

sent out grafted on the Mountain, or Wych Elm. So long as the tree is planted in the rich loamy soil so prevalent in nurseries, the advantage is undeniable,—a larger tree is grown in a shorter time, and equally good; but remove it to the ordinary stiff clay loam of Herefordshire, and the Wych Elm will not thrive. The conclusion is evident: plant English Elms on their own hardy roots."

— *The Everbearing Andine Strawberry*, from the highlands of Mexico, is doubtless, observes Dr. Spruce, one of those varieties of *Fragaria vesca* commonly cultivated throughout the Andes within the tropics, where the perpetual spring of that favoured region has had the effect of rendering the Strawberry perennially fruitful, and many of the deciduous-leaved trees of Europe evergreen. In the Equatorial Andes the province of Ambato is famed for its Strawberries, which equal in size and flavour some of our best varieties, and are to be seen exposed for sale in the market-place of Ambato every day in the year. They are cultivated at an altitude of from 7,000 ft. to 9,500 ft. above the sea, where the mean temperature of the year ranges between 59° and 67°; but the best are grown a little way out of Ambato, as you go towards Guayaquil, on the slopes of Guachi (lat. 1 $\frac{1}{4}$ ° S.), at near 9,000 feet, and in a mean temperature of 60°; where, however, the thermometer does sometimes descend, perhaps half-a-dozen times in the year, to the freezing point in the early morning, scarcely ever on two successive days.

— It is not usual to grow *Shallots* from seed, but the practice is very successfully followed by Mr. Trigg, of Hayling. His plan is to plant out the offsets in the usual manner, and allow them to seed, which they do the second year. The seed is sown in good rich soil, at the same time as Onion seed, and the crop is such that five fair average specimens weigh 1 lb. 7 oz. They at first look like Onions, but when they begin to divide into offsets the peculiar difference between the two is readily distinguished.

— When at Nagarote, in his Nicaraguan travels, Dr. Seemann measured a famous Genisaro tree, *Pithecolobium Saman*, of which the villagers are justly proud, since they had the public spirit—the rarest of virtues in a Spanish American—to refuse an offer made for it of 200 dollars. The tree is but 90 ft. high, but some of the lower branches, which are quite horizontal, are 92 ft. long and 5 ft. in diameter. The stem, 4 ft. above the base, is 21 ft. in circumference, and the crown of the tree describes a circle of 348 ft. A whole regiment of soldiers might seek repose in its shade.

— The pulpy portion of the *Fruit of the Yew tree* is generally believed to be harmless, while the kernel or seed is regarded as poisonous. M. Clos, of Toulouse, who has recently investigated the subject, has come to the conclusion that the Yew berries, including the kernels, are perfectly harmless.

Obituary.

— Mr. W. H. PERRY, who has been for nearly fifty years the faithful assistant of the Messrs. Rivers, of the Sawbridgeworth Nurseries, died on the 20th of November, at the age of 59. Mr. Perry, who has for many years acted as a judge at the Metropolitan Rose Shows, was generally esteemed for his sound judgment, integrity, and unobtrusiveness.

— Mr. W. BARNES, of the Camden Nursery, Camberwell, died on the 22nd of December last, from an attack of bronchitis, in the 61st year of his age. His name is famous in the annals of gardening, as being that of one of the foremost of exhibition plant-growers; while as one of the famous Kentish gardeners of a quarter of a century ago, Barnes of Bromley bore an important share in making our Metropolitan Exhibitions what they now are as displays of horticultural skill. Some years since, Mr. Barnes commenced business as a nurseryman at Camberwell, where he made Azaleas one of his specialities. Both as a censor, and as a member of the Floral Committee, he was highly respected for the manly and straightforward expression of his opinions, and his colleagues will all sincerely regret to lose his companionship, and the benefit of his excellent and well-matured judgment.



Oncidium varicosum var. Rogersii.
J. N. Fitch, imp.

ONCIDIUM VARICOSUM VAR. ROGERSII.

WITH AN ILLUSTRATION.

FEW species of the grand genus *Oncidium* have yet been met with of a more showy and ornamental character than that which we now figure, from a fine specimen which bloomed last autumn in the collection of the Messrs. Veitch and Sons, of Chelsea. The flowers indeed are quite equal in size and beauty to those of *O. Marshallianum* and *O. pectorale*, while in brilliancy of colour they far surpass those of *O. macranthum*. The plant was introduced into this country by Dr. Rogers, of East Grinstead, after whom it has been named; and was exhibited by him for the first time when just going out of flower in November, 1868. Both *O. varicosum* and the variety under notice, are natives of Brazil, the latter differing from the former chiefly in the larger size of its flowers, and in the fewer crests developed on the disk. It is one of the more ornamental of its race, and all the more valuable for its habit of flowering during the late autumnal months.

The habit of the plant resembles that of *O. bifolium*. The pseudobulbs are of a long ovate form, and somewhat compressed and ribbed; they support a pair of ligulate-lanceolate acute leaves, while from their base proceeds an ample branched nodding panicle of large yellow flowers. The sepals and petals are quite small, pale greenish-yellow, marked with brown bars. The lip is large, much crested at the base, where it is mottled with reddish brown; it is furnished with rounded basal lobes, and has a large reniform middle lobe, which is upwards of 2 in. across, divided into four lobules, and of the purest and brightest yellow. The panicles attain about a couple of feet in length, are much branched, and bear sometimes as many as 170 flowers. Like *O. varicosum* itself, this is one of the finest Oncids we have in cultivation. In gardens it bears the name of *Oncidium Rogersii*, but Professor Reichenbach is, no doubt, quite correct in referring it to *O. varicosum*, the four-lobed front portion of the lip affording an unmistakable characteristic.

Being a native of Brazil, it should be cultivated in the Cattleya house; it grows freely when suspended in a basket near the roof; and sphagnum, peat, and charcoal form a suitable compost for it.—M.

THE GARDEN MENTOR.

FEBRUARY is often subject to much rain, and snow, and to storms. When weather of this description prevails, the ground is generally too wet for working, and out-door operations should be suspended until it is in a fit state; but all kinds of in-door work should be prosecuted vigorously.

KITCHEN GARDEN.—If manuring, digging, trenching, and ridging have been attended to in favourable weather during the autumn, the ground will now be in a good state for cropping. A good deep soil, of such texture that it can be

worked without difficulty at any season of the year, is of great consequence in a kitchen garden, as then good vegetables can be easily grown with ordinary attention and labour; but when the soil is either very light and shallow, or of a strong retentive nature, great attention and labour are required at all seasons to obtain good crops. Strong retentive soils should be improved by the admixture of sand, ashes, and such substances as will alter their mechanical condition, while light, shallow soils should be improved by the addition, in winter, of clay and other substances to the surface, and by trenching deeper every time the soil is turned. The improvement of bad soils is a slow and tedious task, but it should be persevered in, otherwise the production of good vegetables can only be accomplished by the greatest care, anxiety, and labour. A few early *Potatos* may now be planted on a warm border or at the foot of a south wall. *Lettuces*, out of frames, may also be planted on warm, sheltered borders. *Cauliflowers* in frames may be planted under hand-glasses; cauliflower plants that were put into small pots in the autumn and have been kept in frames, should now be shifted into 32 or 24-sized pots, using a compost of loam and rotten dung; if put back into the frame and encouraged to grow, they will make grand plants for putting out in a warm border next month, and will head nearly as soon as those planted out under hand-glasses. I find this an excellent plan in our northern climate. *Jerusalem Artichokes* may be planted in some out-of-the-way place. *Horse-radish* should be planted on a piece of trenched ground, in rows about 20 inches apart. *Garlic* and *Shallots* may be planted, in rows 10 inches apart, and about 6 inches in the row. The *Seakale* and *Rhubarb* that were covered last month should be looked over, and additional covering put on if required; some more plants should be covered for successional crops; fresh plantations may now be made. All vacancies among *Cabbages* should be filled up, and the ground between the rows stirred; a fresh plantation may also be made. A little soil should be drawn up to the early crops of *Peas* and *Beans*. *Cucumbers* and *Melons* sown last month should be potted off singly and returned to the hot-bed.

Sow: Peas and beans twice during the month—the first of early sorts, and the second of second-early sorts, for successional crops; Round Spinach, Turnips, and Early Horn Carrot at the end of the month; Radishes and Lettuces on a warm border; a row or two of Parsley; some Savoys and Brussels Sprouts,—it is necessary both to sow and to plant these out early, in order to have them fine and in good time in the autumn.

FORCING HOUSES.—*Pines*: If these have a nice steady bottom-heat of from 80° to 85° , and a night temperature—the fruiting plants of from 65° to 70° , and the succession plants of from 60° to 65° , with an increase of 8° or 10° during the day by sun-heat—they will go on very safely through this month. A little air should be given whenever the state of the weather permits, and the fruiting plants should have water whenever they require it.—*Vines*: As soon as the grapes in the early house are set, thinning should be commenced without delay, before the berries drop down; it is a bad practice to allow the berries to drop down and to swell to the size of small peas before thinning is commenced.

A night temperature of about 65° , fluctuating 2° or 3° above and below according to the weather, with an increase during the day of 12° or 15° by sun-heat, must be maintained. Inside borders must be well watered when they require it. Stop and tie down shoots in the second house as they require it. Give air freely whenever the weather will permit. Prepare a late house for starting in rotation.

—*Peaches*: When the fruit is all set the trees should be syringed night and morning; timely attention should be given to thinning the fruit, also to the disbudding and tying down of the shoots. The temperature should now be raised to about 60° at night, at which it should be maintained until after the stoning of the fruit, and to from 65° to 70° by day, with an increase of 8° or 10° by sun-heat; air should be admitted freely at every favourable opportunity. In the second house attend to previous directions.—*Figs*: These should be kept well watered; a moist atmosphere, and a temperature of about 60° , with an increase by sun-heat, should be maintained. When the young shoots have grown five or six joints, the terminal bud should be pinched out to stop the growth, and to facilitate the formation of the second crop.—*Cherries*: When the fruit is set, the trees should be syringed overhead every fine morning. Water carefully with tepid water.—*Strawberries*: When a sufficient number of the best blooms have set, all the rest should be picked off, and the plants should be removed to a warmer house where they can be kept close and moist, whilst swelling off the fruit; give them liquid manure two or three times a week until they begin to colour, when water should be withheld, and air freely admitted. Advance successional batches in all stages.

HARDY FRUIT GARDEN.—When the planting of any Fruit-trees has yet to be done, it should be proceeded with without delay. If good plants can be obtained and they are carefully planted, are well mulched, and are watered in dry weather during the spring, they may do very well; but as the autumn is without any doubt the best time for planting, it should be done then if possible. The pruning, dressing, and nailing-in of wall trees should now be proceeded with. As the fruit crops in many places were light last year, we shall in all probability have heavy crops this season; at present, most kinds of trees are full of buds, and promise well. Protecting materials should be got ready to hand to be applied to *Apricots*, *Peaches*, and *Nectarines* as soon as the buds begin to open. *Raspberries* should be pruned and tied, and have a good dressing of manure. The pruning of *Gooseberry* and *Currant* bushes should be completed forthwith.

FLOWER GARDEN.—*Plant Houses*: *Pelargoniums* of all kinds will now require attention; all plants requiring larger pots should be shifted, and the small leaves in the centre of the plants removed to admit the free circulation of air; the plants should be kept well tied out. The *Pelargonium* tent at Leeds last June was well worth going a long distance to see. A few of the more forward *Cinerarias* should now be removed to a warmer house, they will then soon come into flower, and will be very useful for bouquets and other ornamental purposes.

Old plants of *Fuchsia* now started in heat will soon break, they should then be shook out, potted into smaller pots, and plunged in a gentle bottom heat; when they have made some fresh roots they should be shifted into larger pots and replunged, and they will again soon require another shift, which should be a liberal one. By stopping the shoots and picking off all the early flowers, large-sized plants are easily grown, and for a variety of decorative purposes during the summer these prove to be very useful. *Hard-wooded Plants* should have air freely admitted in favourable weather, but cold cutting winds must be carefully guarded against; a night temperature of 40° is sufficient in frosty weather. Towards the end of the month the general potting of the young specimens may be commenced; all pots should be clean and well drained. Avoid overpotting, which is a bad practice:

Pits and Frames.—These should be well looked to during the month to keep out damp and frost. *Bedding plants* of all kinds in store-pans should now be potted off, and put into a little heat. A gentle hot-bed should be got ready for cuttings of *Lobelia*, *Verbena*, *Petunia*, *Pentstemon*, *Salvia*, *Fuchsia*, &c.; these, if put in at any time before the end of next month, will soon root, and make good plants before bedding-out time.

Out-Doors.—It is desirable that the laying of *Turf*, the forming or regraveling of walks, and all other alterations intended to be made, should be completed with as little delay as possible, so as not to interfere with the other work. The coverings of dung, leaves, or tan that were placed over the beds of hardy *Bulbs* should now be removed, and the soil between the bulbs stirred. All the more hardy *Roses* may now be pruned, but the tenderer sorts should be left until next month. The beds of *Aubrietias*, *Alyssums*, *Arabis*, and other spring flowering plants should be looked over, and all vacancies filled up.—M. SAUL, Stourton.

TREE MIGNONETTE.

S a winter decorative plant, for baskets, in the house and the conservatory, this is a special favourite here, not only on account of its graceful appearance when grown in a tree-like form, on stems 2 ft. high, with heads from 2 ft. to 3 ft. through, but also on account of the fragrance it diffuses around. Indeed, our plants are the admiration of all who see them.

To have the plants in bloom by November, the seed should be sown by the middle of March. We use 3-in. pots, thoroughly cleaned and well drained, with a thin layer of moss over the crocks. The soil should be rather free, and put through a half-inch sieve. The pots are nearly filled, the soil gently pressed down, and a few seeds placed in the centre of each, covering them over with soil to about the thickness of the seeds. We give a good watering, and place the pots near the glass in a temperature of 60°; if the surface is shaded until the plants make their appearance, so much the better. At this stage of their existence, the young seedlings don't relish being often watered.

As soon as the plants are large enough to show which is the strongest, we take all the others away, and put a small stick to the one left, and to this it is tied as it grows, in order to keep it from breaking at the neck. When about 6 in. high, it will require another shift into a 6-in. pot, observing the same care as before in regard to drainage at this and all future pottings; the soil, moreover, should be only chopped, and some leaf-mould, a good sprinkling of sand, and a little soot should be well intermixed throughout the mass. A little of the soot sprinkled over the moss on the top of the drainage, will be beneficial in keeping worms from getting into the pots during the summer.

We find 11-in. pots large enough for making fine heads. The leading stem should not be stopped until it has reached the height required, and then the six top side shoots will be found to make a fine head if properly attended to, in regard to pinching and tying down to a small trellis made of wire, of the shape of an umbrella. In pinching out the side shoots, a pair of grape scissors will be found best, as they do not injure the stem leaves, which must be taken great care of all through. By growing in a temperature of 60°, near the glass, giving manure-water twice a week after they have filled the last pots with roots, and daily syringing overhead, they will by the month of November amply repay all the labour bestowed upon them.

The same treatment applies to pyramids, only none of the side shoots must be pinched away. We have at present (December 28) plants which, when staked, will be 3 ft. high, and as much through.—A. HENDERSON, *Thoresby*.

CHOROZEMA LAWRENCEANUM.

 MOST of the species of *Chorozema* are of easy culture, and, if they are well managed, but few plants make a greater display of blossoms in the spring months. The contrast afforded by the showy red flowers and

 dark green, glossy foliage of *C. Lawrenceanum* renders it a very attractive plant when well bloomed; but any of the species or varieties will do equally well under the treatment I am about to recommend, excepting perhaps *C. Henchmanni*, which is of a more delicate constitution.

A young healthy plant should have a shift at the beginning of February. If well rooted, a pot two sizes larger than the one from which it is taken may be used, but plenty of crocks, with a layer of rough, fibry peat over them, for drainage, must be provided. The soil should consist of five parts of good fibrous peat, to one part of loam, and to this must be added sufficient silver sand to ensure that the water will pass freely through when applied in watering. The plants should be potted firmly, and placed in a light airy situation in the greenhouse, near the glass. The roots must be kept in a healthy state as to moisture, by giving water only when necessary, but in doing this, thoroughly soak the ball of earth, for if efficient drainage has been provided, there will be but little danger of over-watering a healthy plant. By the middle of July, if all has gone well, another

shift will be required. The soil is to be used in the same proportion as above recommended, and the plants treated in every way as previously directed, until the middle of August, when it should be placed in the open air, well exposed to the sun, for about six weeks, after which it should again be returned to the greenhouse, and treated as before. One shift in the season will be all that will be required, after the first year, and this should be given as soon as the blooming period is over.—HENRY CHILMAN, *Somerley Gardens*.

MOTHS AND CATERPILLARS.

GARDENERS are necessarily entomologists, even though their knowledge of insect life may not, in many cases, be at all of a scientific character, since they have always a too thorough practical acquaintance with the insect world, as illustrated by its depredations—under which category the habits of the moths or rather their larvæ gain for them a prominent position. We hail, therefore, with much pleasure the appearance of an authoritative work on the subject,* by one of the most painstaking and practical of British entomologists, a work which is so fully and beautifully illustrated that by its use there can be little or no difficulty in identifying the British insects of the moth family, by their portraits. Such a work as this, popular in style, sound in its teachings, prepared with the most scrupulous exactitude, and as we have said, most charmingly illustrated, is exactly adapted to meet the wants of the gardening community, to whom it may be most heartily and confidently recommended.

The subject is one of considerable scope, and in dealing with it, the author, Mr. Newman, takes up the insects, in order, by their several families, giving of each a familiar description, in which the characteristics both of the moth and the caterpillar are noted, and its habits and pasturage are pointed out. The engravings which accompany these descriptions are literally studies of the several insects, and are perfect marvels of art in regard to the effect brought out by mere black and white figures. Some two or three of these engravings we are enabled to subjoin, through the courtesy of the publisher, and we cannot, therefore, give a better notion of the high quality of the book than by quoting the passages which refer to them. Here is the account of the Goat Moth:—

"So called from the caterpillar having a very pungent disagreeable smell, like that of a he-goat. Fore-wings rich brown, beautifully variegated and mottled, the darker markings being dispersed in waved lines, placed transversely to the rays; hind-wings pale dingy brown, having markings something like those on the fore-wings, but less distinct; antennæ slightly fringed throughout in both sexes, dark brown; head also dark brown, with a nearly white ring round the neck; thorax dark brown in front, shaded to whitish-grey in the middle, and having a rather narrow black band behind; body brown and grey in alternate rings. Caterpillar, flesh-coloured, with a black head and broad dull red stripe down the back. Feeds on the solid wood of willows, elms, oaks, lilacs, and other trees, living for four years. It has caused the death of many valuable elms; and a small beetle (*Scolytus destructor*) breeding abundantly in the bark of the dying trees, the injury has been erroneously attributed to this beetle, and not to the true

* *An Illustrated Natural History of British Moths, with life-size figures from nature of each species.* By Edward Newman, F.L.S., F.Z.S. London: W. Tweedie, 337 Strand. Large 8vo, pp. 406, with upwards of 700 figures.

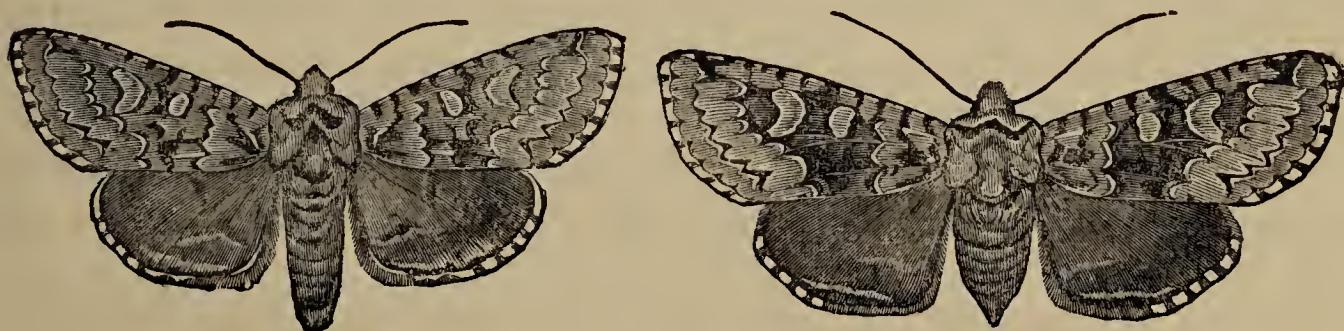
cause, which feeding and carrying on its work of devastation out of sight, has escaped the notice of superficial observers. Before changing to a chrysalis it spins a very large tough cocoon, composed of silk mixed with fragments of gnawed wood. This caterpillar is the *Cossus* of Pliny and the Roman epicures. The scientific name is *Cossus ligniperda*.



The Goat Moth belongs to the Zeuzeridæ, a family of Nocturni. That which we now turn to is one of the *Noctua* group, and is called the Marvel-du-Jour. The account of this beautiful moth is as follows:—

"The palpi are pointed at the tips; the antennæ simple, but rather stouter in the male; the fore-wings are pale green, ornamented with black and white markings, the black markings often forming something like a median band; the discoidal spots are distinct, and always white, with green centres bounded by black; the hind-wings are smoky black, with a darker discoidal spot, a lighter median transverse line, and a broad marginal white line; the fringe is smoke-colour, with six white spots; the head and thorax have the same colour as the fore-wings; the body is smoke-colour, slightly paler at the base."

"The head of the caterpillar is shining and of a greenish-grey colour, with a black cross resembling the letter X on the face, the body stout, cylindrical, and of a greenish-grey, sometimes tinged with red; the dorsal area is dark and interrupted by a series of lozenge-shaped



markings of the same pale grey-green, which is the general ground colour; there is a pale stripe in the region of the spiracles, bounded above by a somewhat darker stripe. It feeds on the oak (*Quercus Robur*), and is full-fed in June, when it descends the trunk, and entering the earth constructs an earthen cocoon a considerable depth beneath the surface, and therein changes to a chrysalis, of which Mr. Greene says, 'It occurs in the utmost profusion. I have taken as many as twenty at one time. This will be one of the first chrysalids found by the beginner; nothing can be easier; merely turn up the earth and break it, and they will tumble out of their brittle cocoons in plenty.'

"This extremely beautiful moth appears on the wing in October, and is very common in England and Scotland, also in the counties of Dublin and Wicklow in Ireland. The scientific name is *Agriopsis Aprilina*."

In this pleasant and familiar style the reader will gather particulars of many a garden ravager, and by means of the figures may recognize his enemies, and so

to some extent perhaps be helped to mitigate the plague. Among others, he will learn about the Winter Moth, with its apterous female, whose larvæ is especially destructive to plum trees ; the Currant Moth, the caterpillar of which feeds on the gooseberry and black currant ; the handsome Tiger Moth, whose larvæ have a taste which is ubiquitous, and an appetite described as voracious ; the Leopard Moth, whose caterpillar bores up the stems of fruit trees, as apples, pears, &c. ; the Antler, notorious for the injury it does in grass lands ; the Vapourer, whose dainty teeth lately attacked the Pelargoniums at Hardwicke ; the Cabbage Moth, the Turnip Moth, with many others, for which we refer to the book itself, which forms a handsome volume, well printed, elegantly bound, and fit to ornament any drawing-room table. It would have been a convenience had Mr. Newman given us a brief synopsis of the classification adopted, and made his adjective names less prominent in the index ; but these are small blemishes in a work of such general excellence.—M.

CARNATIONS AND PICOTEES.

AFTER many years of neglect, these charming flowers have of late considerably revived in public estimation, and now they are cultivated largely by private growers for cut flowers as well as for exhibition. To the show sorts have now to be added what are called Tree or Perpetual-blooming Carnations ; and since the rage for button-hole bouquets, *i.e.*, choice flowers for gentlemen's coats, these latter have been very much grown, as they force easily ; and if not to be compared in beauty or in quality with the chaste show varieties, are, at least, bright and pleasing, and have the same delicate and justly-prized perfume.

There is still another class to be added, viz., the Cloves, which are of many shades, from pure white, to rose, scarlet, crimson, purple, maroon, &c. These produce only one head of bloom in the season, like ordinary Carnations and Picotees ; but they are generally robust growers, and succeed with ordinary culture, making excellent border plants, while for furnishing cut flowers they are most valuable.

Though the Tree Carnations will force more easily than Cloves, Carnations, or Picotees, yet these latter, if they are grown in medium-sized pots, and are well established in them, can be brought into bloom much earlier than is generally supposed : that is, if they are grown in a well-ventilated pit or small greenhouse, with gentle heat at first, which may be increased as the season advances.

As regards the choice or exhibition varieties of Carnations and Picotees, those we now possess are as silk compared with cotton by the side of flowers that held a foremost place twenty-five years since ; but there have been no opportunities for placing them before the public, since the London shows are generally over before they bloom. From the admiration excited by those shown at the Royal Horticultural Society's Show at Manchester, it is easy to conjecture what would be

the result if similar collections were placed before the public more frequently; and as the Royal Horticultural Society go to Oxford—a city that is a nest of old florists—in July next, at what is usually the height of the Carnation and Picotee bloom, it may be fairly anticipated that we shall there see, to some extent at least, a revival of olden times.

The culture of these plants has been so fully and plainly given in former volumes of the *FLORIST*, that it is unnecessary to repeat it here. There is very little difference made as regards their treatment at the present day, though perhaps they are not quite so much nursed as formerly. Subjoined is a list of the best varieties in their different classes.—CHARLES TURNER, *Slough*.

SHOW CARNATIONS.	<i>Scarlet Flakes.</i>	Oscar.	Lord Valentia.
<i>Scarlet Bizarres.</i>	Annihilator.	Rembrandt.	Miss Turner.
Dreadnought.	Cradley Pet.	The Dragon.	Mrs. R. Hole.
Lord Rancliffe.	William Cowper.	Valiant.	<i>Purple-Edged.</i>
William Pitt.	<i>Purple Flakes.</i>	CLOVE CARNATIONS.	Ganymede.
<i>Crimson Bizarres.</i>	Dr. Foster.	Bride.	Jessie.
Anthony Dennis.	Earl of Stamford.	Garibaldi.	Lady Elcho.
Colonel North.	Florence Nightingale.	Glory.	Admiration.
Eccentric Jack.	True Blue.	Princess Alice.	Nimrod.
Rifleman.	TREE CARNATIONS.	Queen of Whites.	Picco.
The Lamplighter.	Admiration.	Snowflake.	<i>Rose and Scarlet-Edged.</i>
<i>Pink & Purple Bizarre.</i>	Beauty.	True Old Crimson.	Lucy.
Falconbridge.	Boule de Feu.	SHOW PICOTEES.	Miss Sewell.
<i>Rose Flakes.</i>	Bride.	<i>Red-Edged.</i>	Miss Williams.
Flora's Garland.	Brilliant.	Colonel Clerk.	Miss Wood.
King John	Hector.	Exhibition.	Mrs. Fisher.
Rose of Stapleford.	Henshaw's Scarlet.	Forester.	Mrs. Rollings.
	Lee's Scarlet.		

THE CAUSE OF FAILURE IN THE FRUIT CROP OF 1869.

THE very general failure of the different Fruit Crops throughout the United Kingdom and several parts of the Continent, has called forth the opinions of many distinguished horticulturists as to the cause of so extensive a mishap, with a view to ascertain whether and in what respect our treatment has been defective. After such a season as that of 1868, which apparently ripened and matured the wood and fruit-buds to perfection, such unlooked-for deficiencies are certainly the more vexing, and leave some knotty questions to be settled.

I have read with much interest, as they have appeared, the various remarks relating to this subject in the different gardening publications, and I observe that the prevailing opinion is that the *non-fructification* of the blossoms was owing to unfavourable weather at the commencement of the year, and during the flowering period. This may, to a certain extent, be correct; but with the use of orchard, peach, and apricot houses, the trees being under glass, and the buds so perfectly developed, the state of the weather outside should not have occasioned so general a failure. It is by no means uncommon in the early forcing of peach houses, in

this northern part of Britain, to have unfavourable weather during the whole flowering period ; nevertheless, good crops are generally obtained. I therefore conclude that the assumed unfavourableness of the weather during the early stages of growth, could not have been the sole cause of the failure. I am much rather inclined to believe that it was owing to the excessive dryness of the soil at the roots, and the entire absence of dew in the previous summer, which prevented the proper secretions from being stored up in the embryo fruit-buds, which, although to all appearance unusually full and perfect, were in reality not so, since they lacked stored-up energy—such energy as a barren tree may generally be seen to possess, while it is wanting in one carrying an over-abundant crop of fruit. Where liberal waterings were not resorted to, the trees had a hard struggle to supply both fruit and foliage through so long a drought, and all the more so where a vegetable crop covered the surface of the border.

The Apple crop here, as in most other places, has been a failure, the exceptions being those sorts that bore little or no fruit the previous season : this fact furnishing another proof of the effects of stored-up energy in the buds in promoting the powers of fruition. These strong and well-stored buds seemed to escape the ravages of caterpillars, which so generally attacked the weaker ones, that at the time of flowering very few perfect blossoms were to be seen, most of them having two or three petals deficient.

Both Peaches and Apricots set their fruit well, and bore good crops. Much of this success I attribute to two liberal waterings given to the roots during the dry period of 1868. The peach-wall border is never cropped, and has a drainage of 18 in. depth of stones all over, the soil being not more than 20 in. deep. The roots are coaxed as near the surface as possible by forking in, about 4 in. deep, good layers of well-rotted dung every second or third year. The Apricot border is cropped generally with kidney beans and ashleaf kidney potatos alternately. The roots are here also near the surface, the trees having been all root-lifted, and encouraged upwards, by baring the roots and applying good coats of manure. The vegetable crop showed exactly, during the dry weather, how far the tree roots extended. This gave me the first hint that both trees and vegetables required watering, and immediately a thorough soaking was given, followed by another about three weeks afterwards. The same was also done in the case of other wall trees, where the borders were otherwise cropped.

I find, upon examining my note-book, that the first expanded flower of Apricot on the open wall in 1869 was seen on February 12, being ten days earlier than in any former year registered. We seldom use any other covering than old herring nets put on double. The crop gathered this season was between 400 and 500 dozen. I had the crop reduced, however, much below the average, because some of the trees had been recently root-lifted, and had not fully regained their vigour the previous season.—J. WEBSTER, *Gordon Castle.*

AQUATICS.—CHAPTER I.

 WATER Plants, usually termed Aquatics, are particularly interesting, whether viewed as a grand natural and comprehensive group, or taken individually. This will be all the more apparent when their various peculiarities, and also their adaptation for ornamenting our stoves, conservatories, lakes, or ponds are closely observed. While some few cultivators, amateurs and others, give their partial attention to a very limited number, the greater portion are passed by unheeded, and thus our gardens are deprived of some of their most attractive ornaments. Some of these Water Plants need only an area of a few inches for their accommodation, while others occupy a considerable space when perfectly developed. I propose to point out, under their respective heads, the requirements of each, including stove, greenhouse, and hardy kinds, and to add cultural notes and remarks on the curious habits of some quaint members of this extraordinary family.

The above remarks apply also in part to what I shall here term "Amphibious Plants,"—plants suitable for fringing the margins of ponds, lakes, pools, or meres. I am not aware that these plants have hitherto been treated of, as a separate group, but they are very effective when judiciously placed, and might be termed sub-aquatic or swamp plants, though the term I have selected is the most expressive. This latter group may serve to remind us vividly of the autumnal rustling of hosts of swallows among our own native reeds at eventide. Anon we are on the banks of the Nile amongst the tall and stately stems of the papyrus, lotus, and bullrush, the favourite resort of the ibis, the pelican, and the widgeon.

Take, for instance, the *Aponogeton distachyon*, a plant that has existed in our gardens since 1788, in which year it was received from the Cape, and which is sufficiently attractive to merit a place in every garden, as the following remarks will show:—The flowers are produced on a forked spike, about three inches in length, and are of snowy whiteness, having the appearance of imbricated scales of shell-like consistency, with a tuft of jet black anthers at the base of each, and exhaling copiously the delicious perfume of the hawthorn. While the flowers rise just above the surface of the water, the leaves, which are from 6-in. to 15-in. long, by 1-in. wide, lie flat upon the surface, and are of a bright glossy green. The root-stock is an oblong tuber, two inches long, of a reddish-brown colour.

This *Aponogeton*, which is very nearly allied to the *Ouvirandra fenestralis*, of Madagascar, is not very frequently met with, notwithstanding its many recommendations. As to culture, it would be difficult to place it where it would not flourish, if it were only put into the water. It has been observed in the month of January almost covering a large pond with a profusion of its lovely blossoms, and when thus planted no frost will kill it. When the water is shaded by large trees it flowers just as well. It also thrives beautifully when planted in conservatory or greenhouse tanks, and appears quite at home there. When grown

in the stove, it blooms in the same profusion, only the foliage and flowers are larger. The flowering season generally lasts from January till April, when it remains dormant for a short time, and then recommences to grow, and continues to flower till the end of the summer.

For compost use good pure yellow loam. It can be grown in pots, where it is not convenient to plant it out. For very small gardens it may be grown in an earthenware pan or tub sunk in the ground to the level of the grass, with the turf slightly raised for a foot or so round the margin ; thus placed, it has a particularly neat appearance, as nothing is seen but the plant and the water in which it grows.

The *Aponogeton monostachyon* is a native of the East Indies, and produces pink flowers, but requires a stove ; in general habit it resembles the last, but the leaves are smaller, and the flower-spike is undivided. It is well worth cultivating.

The *A. angustifolium*, sent from the Cape in 1788, and producing white flowers, appears to be lost to the country. *A. crispum*, of Ceylon, has also disappeared ; it has white flowers, and must not be confounded with the *Potamogeton crispum* of our ponds and rivers. The Cape *A. junceum*, formerly in the collection of the Messrs. Knight and Perry, of Chelsea, does not now appear to be in cultivation in this country. Those who have correspondents in Ceylon, or at the Cape, would do well to try to reintroduce the three last-named species.—W. BUCKLEY,
Tooting.

NEW FRUITS AND VEGETABLES.

GOOD Fruits and good Vegetables are fully as important as good flowers—if not indeed more so ; hence we are not disposed to join in the chorus of complaint which is often heard as to the overwhelming supply of novelties, or supposed novelties, by which, it is affirmed, the unwary are not infrequently taken in and mulcted. Good old things are not indeed to be lightly cast aside ; they should be held firmly till something better is safe in hand, but in these progressive days there is and must be a striving everywhere for improvement, and it is the efforts thus made towards progression—not always, it may be true, crowned with success—which give us the flood of novelties complained of. From amongst these, however, it is indeed odd if some real gain is not annually secured,—a mere gradation it may be in most cases, as to size, quality, or productiveness, but here and there showing that an entirely new vein has been struck. The past year has not been so prolific of novelties in the way of Fruits, as some of its predecessors. This may in some degree be accounted for by the uncongenial nature of the spring of 1869, which had a most disastrous effect upon fruit crops generally.

Commencing with the Grape, the king of fruits, we have to welcome, as a standard late white Grape, Mr. W. Thomson's *White Lady Downe's*, a variety possessing all the good qualities of its black parent, the well-known *Lady Downe's*.

Seedling. Mr. Pearson, of Chilwell, may also be complimented on his success in hybridizing the scented Strawberry Grape with our better-flavoured European varieties—an important preliminary step, though the hybrids obtained are not large either in bunch or berry, since they possess the true Strawberry scent of the parent, and are very pleasantly flavoured, especially one which is now called *M. de Lesseps*. Then we have, from Mr. Melville, of Dalmeny Park, another scented grape, called the *Perfumed Muscat*, which in appearance somewhat resembles a small Muscat of Alexandria, and is very pleasantly flavoured. A curious sport from the Citronelle, with striped berries, resembling, in the peculiarity of its colouring and marking, the old Aleppo or variegated Chasselas, has been seen at one of the Kensington meetings.

New *Melons* are generally plentiful, but there are few more finely-flavoured or more distinct than Mr. Gilbert's *Burghley Green-fleshed* has proved itself to be; while the new Italian variety, *Triomphe de Nice*, is also of fine quality.

Among Stone Fruits, we have acquired—of *Apricots*, *Golden Drop*, a small very early sort; and *New Large Early*, a very decided improvement on the old form. *Peaches* yield a good useful variety in *Large Early Mignonette*, ripening about a week earlier than the Early Grosse Mignonette; and of *Nectarines*, *Lord Napier* is an early sort, of first-rate quality, raised from a stone of the Early Albert Peach. These all come from Mr. Rivers' establishment. Of *Plums* we have a valuable addition, as an early dessert fruit, in *Dry's Seedling*, a large, roundish-oval, reddish-purple variety, very pleasantly flavoured.

Dessert *Apples* have yielded little novelty. To Mr. Lawrence, of Chatteris, we owe a very pleasing addition to winter dessert fruit in *Mrs. Ward*, one of the most sprightly-flavoured, pleasant, and beautiful little Apples yet introduced, having the appearance of a Court of Wick, with the colour of the Scarlet Non-pareil, from which it was raised. Of this we have given a wood-cut. We may also notice, as a pretty ornamental sort, rivalling the Pomme d'Api in beauty, and of good quality into the bargain, an accidentally-crossed seedling of the Red Siberian Crab, raised by Mr. Jennings, and to be called the *Fairy Apple*. This we hope to figure next month. In *Pears*, though many varieties have been brought forward, all have fallen short in point of flavour, for which, perhaps, the season is mainly to blame.

Small Fruits have furnished *M'Laren's Prolific Raspberry*, a double-bearing, large red variety, producing enormous crops on the young shoots; its chief merit thus being its lateness. *Black Currants* have given us in *Lee's Prolific Black* a sort larger and better than the Black Naples, and one which possesses the merit of hanging firmly on the bushes for a long time after getting ripe. Finally, to wind up with a *bonne-bouche*, we gain in *Strawberries*, the *Ascot Pine-apple* of Messrs. Standish and Co., a very highly-flavoured early sort, having all the characteristics of La Constante, but being much earlier.

In the Vegetable department improvement has hitherto been mainly effected

by careful selection of the general stock; but now the hand of the hybridizer is upon them, and, in *Peas* especially, a great revolution has been effected. In Messrs. Carter's *Cook's Favourite*, of which we gave a figure at p. 17, we have one promising addition. In *Potatos*, Mr. Fenn's *Rector of Woodstock*, an early round variety of first-class excellence, is a sterling acquisition; and Mr. Turner's *Beaconsfield Kidney* is a large and beautiful, clear-skinned tuber, of fine quality. The American varieties, of which so much was expected, have proved of but little value. In Salad roots, Messrs Veitch and Sons' *Chelsea Beet* has rarely been surpassed for uniformity of growth and sweetness of flavour. In *Lettuces*, the *Sugarloaf* is an improved variety of the Brown, or Bath Cos. In *Cucumbers*, the winner of the past year's race was *Blue Gown*, a long, handsome, black-spined variety, of fine quality and prolific habit, now in Mr. Turner's hands.—B.

GOODYERA DAWSONIANA.

OW that this beautiful-leaved gem has flowered, we are enabled to give it its proper station amongst the *Goodyeras*. It was temporarily named *Anæctochilus Dawsonianus* by Professor Reichenbach while in leaf only, but I have no doubt that when he sees the flowers he will correct the nomenclature. No *Anæctochilus* yet in cultivation, not even the beautiful *A. Lowii*, can outrival this beauteous-leaved plant; and when to beauty of foliage is added the grace and enchantment of a hyacinth-like spike of flowers, white as snow, one can well understand how captivating such a plant must be to all who have plant stoves. Another decided advantage it possesses is its easy way of growing under ordinary cultivation. As a rule, each *Anæctochilus* has a little artificial atmosphere for itself enclosed by a bell-glass, but this thrives far better without any coddling of the kind. Its fine foliage becomes of an intenser hue of dark velvety brown, or to keep to more precise terms of description, dark umber-brown, when left exposed to the ordinary run of a stove atmosphere, and as a consequence the texture of the leaf is much firmer, and less liable to get injured either by inferior cultivation, or what is attended often with fatal effects, a continuance of dark days. The principal lines of venation are singularly beautiful, being as sharp and prominent as if struck with a line dipped in a mixture of crimson and gold, while the inferior venation lines radiate in all directions from the centre line. It seems to get along well under the ordinary food treatment given to Indian orchids. Sphagnum and sand, with a lump or two of fibry peat intermixed, answer admirably as a compost for it.

The inflorescence consists of a stout spike, rearing its head considerably in advance of the foliage. Strong plants will throw up spikes from a foot to fifteen inches in height. Its pedicels are white and hairy, with brownish ovate sheaths, and the individual flowers are pure white in every part, with the exception of the extremity of the column, which is yellow. The singular characteristic of the flower is that the dorsal sepal and two petals are connate, and being so connected, form

a sort of hood over the column. The two inferior sepals, as if intended by Nature to correct the outline, are arched backwards and upwards, and at first look as if they were the ordinary petals. The labellum is spathulate, rolled up in a retrorse manner, and set in an angular direction from the centre; the column takes the peculiarity of being in the opposite angular direction from the line of the labellum. It might almost, looking at cognate species, be considered a morphological curiosity, with these parts arranged in almost mathematical precision. As it is, all the parts of the flower seem to be, to use a popular phrase, at sixes and sevens with one another. It is sure to become even more popular than it now is.—JAMES ANDERSON, *Meadow Bank*.

THE AMATEUR'S PAGE.

PRESUMING my remarks on the *Chrysanthemum* (see p. 21), I advise that when the young plants are pretty well rooted, and a short time before they are shifted into larger pots, they should have their first stopping, because upon attention to this operation depends the chance of obtaining dwarf plants with healthy foliage down to the pots. The reason is, that if left unstopped they will run up with long naked stems, having a bunch of foliage and flowers at the top,—beautiful enough in themselves certainly, but ill calculated for use as decorative plants for the amateur's purposes. Pinching-back or stopping becomes then an imperative necessity. The amateur, therefore, on receiving his cutting plants, should ascertain if they have had their first stopping, and if not, it should be done at once, in order to induce the lower buds to break. When these buds are to be perceived, and the roots are well forward, the plants will be in the best possible condition for shifting into larger pots. To make this operation of pinching-back still plainer to the tyro, I would observe, that supposing the plants to be from 5 in. to 6 in. long, with good foliage, it will be safe to reduce them one-half, or so as to leave a short stem with four good leaves upon it, as near the surface of the pot as possible. That will be a good start. It is here that we find the advantage of soft-wooded spring cuttings, in preference to the harder wood of the autumn, for if the latter were headed back so closely there would be no foliage; and they would be longer in breaking, which, if their use is unavoidable, implies the necessity for commencing with them earlier in the season.

The pots required will be those of 5-in., 6-in., and 8-in. diameter; these are quite large enough for any amateur's purposes. The first shift from the cutting pot should be into a 5-in. pot. The operation of shifting is very simple; let the new pot be well drained by placing a hollow-sided crock over the drainage-hole, then a little handful of smaller broken crocks over it, and over that a little moss; turn the plant out of the pot by inverting it on the left hand as before described, and after carefully removing the crocks, calculate how deep it will go into the new pot, into which place sufficient soil, so that when the ball is placed

thereon the surface will be level with, or rather above, the rim of the pot; put in soil around the sides of the ball, and placing both thumbs on the surface of the ball, lift the pot, and give it some smart blows on the bench; this and the pressure of the thumbs will consolidate the soil, and leave room for water at the surface. Let the plants be then returned to the frame, and gently watered, but not drenched. They should have the glass drawn over them at night, and in bad weather, but free exposure should be permitted in fine weather during the day. From early in June they should have free exposure day and night.

From the end of May until the end of the *first week in July*, the plants will require almost daily attention to pinching-back the strongest shoots as they start into free growth. As a rule, it will be safe to let them grow about three inches, and then take one inch off the top. After the first week in July, pinching-back must cease altogether, otherwise there will be no bloom.

Early in June the plants should be sufficiently rooted to be ready for a shift into 6-in. pots, previous to which a level piece of ground should be selected in a sheltered situation, but open to the sun, and covered with a good layer of finely-sifted coal-ashes, pressed down with the foot, and raked level. Having performed the operation of shifting, as before recommended, place the pots quite level, about 6 in. apart, on the coal ashes. Daily attention to watering will now be the principal care, and this should never be neglected, because the tendency of dryness at the root is to harden the lower part of the stem, and cause all the lower leaves to fall off. Should mildew appear on the leaves, as is often the case in moist seasons, it may be kept down by timely dustings with sulphur. In a month's time, or say after the final stopping in the first week of July, the plants should be ready for the final shift into 8-in. pots, in which they must be left to bloom.—JOHN COX, *Redleaf*.

PANSIES FOR SPRING BEDDING.



F all the members of the British Flora, there is not one that has been improved upon to a greater extent, nor one that is more prone to improve yet further, than the Pansy—*Viola tricolor*. The Pansy contains all the necessary qualifications to render it emphatically a useful plant. It is hardy, and will succeed in almost every situation; it is free in growth, and easily obtained and propagated; and it produces its flowers in innumerable quantities at a season of the year when they are most appreciated. This flower therefore should occupy a prominent position in every garden, more especially where spring bedding is carried on.

The Pansy, too, is exceedingly valuable, on account of its great diversity of colours, almost all of which are duly represented by some of its members. It is true there are no reds or crimsons yet; but the time may soon come when every shade of colour required for extensive spring bedding will be found in this charming flower. At present we are only compelled to call in other families to fill up

the vacancy caused by the absence of red or crimson. We have, however, in it a great variety of colour, sufficient to form very pretty designs, without the assistance of any other plant; and a garden well laid out with blue, purple, yellow, and white pansies would have a most charming appearance during the early months of the year. I shall now mention the best and most distinct of the bedding varieties, selecting those which will be sure to give satisfaction.

Among the blues we have *Imperial Blue*, and *Trentham* or *Cliveden Blue*, the former producing fine bold flowers very freely, of a deep gentian-blue colour, the latter quite a light blue, but the freest to flower of all the bedding varieties. It is, in fact, never out of flower; even at the present time (January), it is a mass of colour, but in February, March, April, and May it may be seen in perfection.

Among the Yellows we have several to select from, viz., *Trentham*, or *Cliveden Yellow*, *Sunset*, and *Cloth of Gold*; but as I am to recommend only the best, the first-named must be discarded, though I do not like turning off old friends. *Sunset* is a very fine deep sulphur-coloured flower, of good form and great substance, and flowers freely, but not so early nor so freely as *Cloth of Gold*, which in my estimation is the best yellow pansy ever raised. It is a fine bold flower, of a bright deep yellow colour, with a jet black centre, and is exceedingly conspicuous when in bloom.

Among the Purples, the *Trentham*, or *Cliveden Purple*, supersedes all others by its early-flowering capabilities, its free growth, and the long continuance of its flowers; these are very large, of great substance, and of a rich velvety purple.

The *Trentham White* and *Great Eastern* represent the best of the white bedders. The first-named I prefer, although the flowers are not so large as those of the latter, for the habit is better, and more in unison with that of those previously mentioned. The flowers are of a delicate, creamy-white colour, very freely produced, and it continues in bloom a long time. The latter produces very large flowers in great profusion, but is not so pure in colour as the *Trentham* or *Cliveden White*.—A. I. P., Tottenham.

AGAVE HORRIDA.

E hail with much satisfaction the signs of a revival of the taste for succulent plants in general, and for such striking groups as those of *Aloe* and *Agave* in particular. Many of these latter, to which we would now more especially refer, are amongst the finest objects which can be desired for decorative gardening, being well adapted for prominent positions in greenhouse conservatories during the winter, and for terrace gardens during the summer; whilst a succulent house, in which a collection of such objects can be grown, becomes a paradise for the plant lover.

Amongst those of recent acquisition, the *Agave horrida*, and its variety *lævior*, may be noted as objects of interest for those who may desire to commence the formation of a collection of *plantes grasses*, or may wish to increase one already

in existence. The figures, which we are enabled to introduce through the courtesy of Mr. Laurentius, of Leipzig, and which have been prepared from drawings by Mr. Thieme, of that city, convey a better idea of their characters than

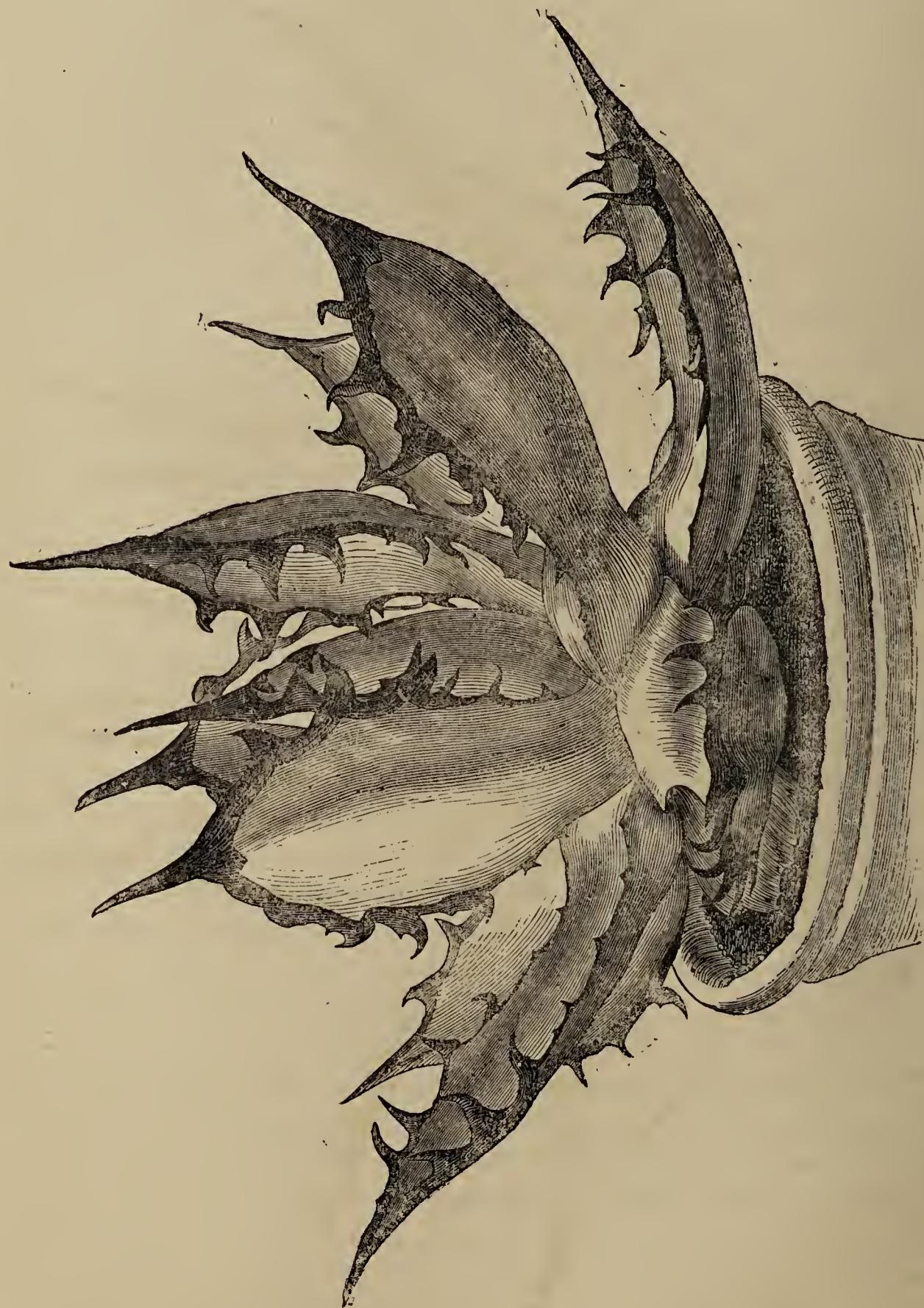
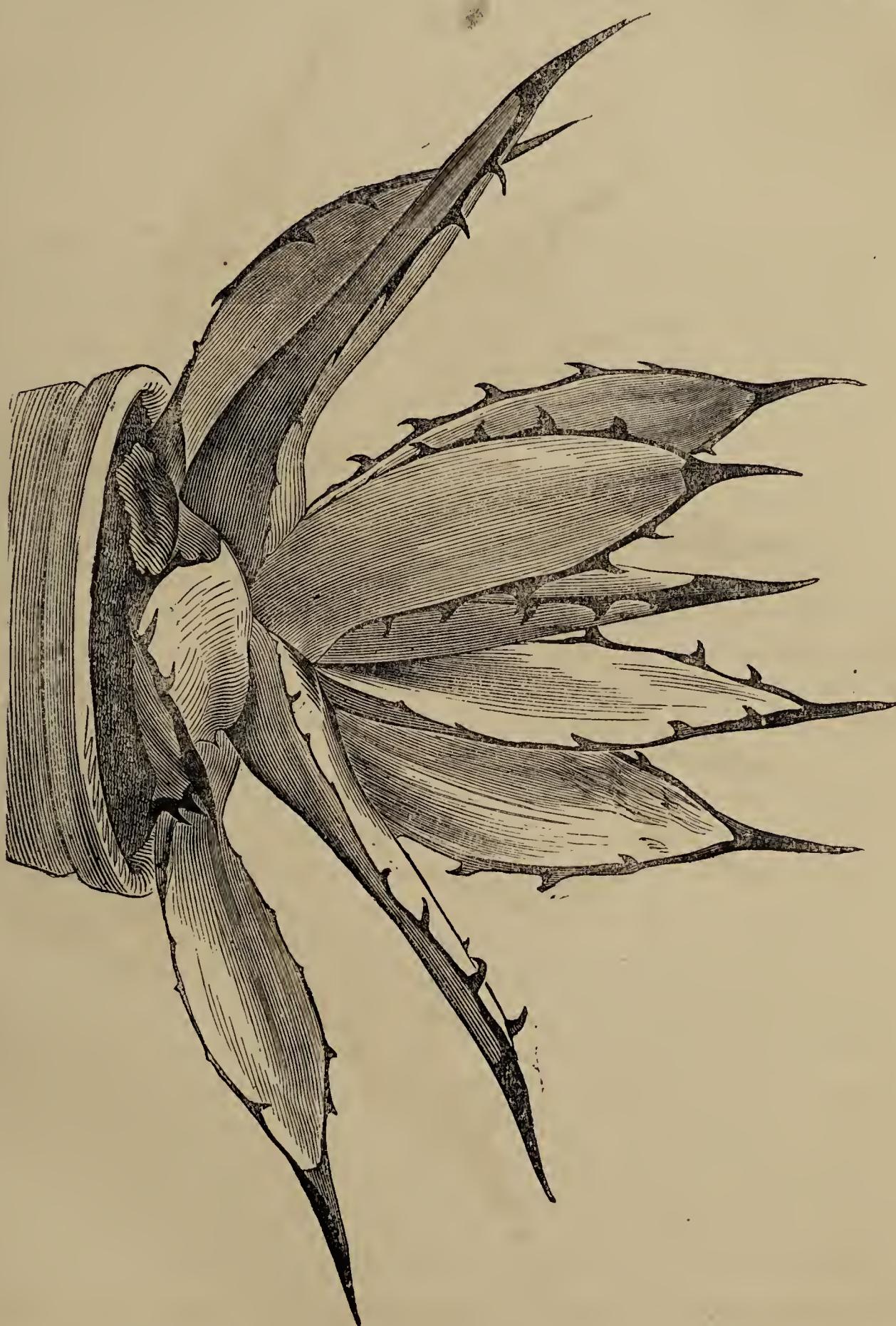


FIG. 1.

any word-painting could do ; but we may add that *A. horrida* itself (fig. 1) is a dwarf, stemless species, with broad oval-lanceolate, somewhat concave, leaves, which grow rosette-like, and are about 4 in. long, and from $1\frac{3}{4}$ in. to 2 in. broad at the widest part, of a lively and tender green, terminating each in a long, stout,

dark, chestnut-coloured spiny point, and armed along the deep maroon-brown margins with large and somewhat irregular, hooked, dark-coloured thorns. The variety *lævior* (fig. 2) has rather longer and narrower leaves, of a pale green, with

FIG. 2.



fewer and more slender marginal thorns, the margins, thorns, and terminal spines being, moreover, chestnut-coloured, changing to a silver grey. Both are free growers, and are decided acquisitions amongst plants of this character.

We learn from Mr. Laurentius, who cultivates for sale an extensive collection of *Agaves* and allied plants, that he acquired, in the autumn of 1868, the stock of these two forms of *Agave horrida* from Mr. Besserer, by whom they had been discovered in, and introduced from, Mexico, a country which has furnished us with many fine species of this most beautiful and interesting genus. The name of *Agave horrida* has, we understand, been confirmed by General Jacobi, the learned monographer of this interesting family.—M.

NEW PLANTS OF 1869.

CONTINUING our brief enumeration of the New Plants of 1869, we next come to the group of Stove Plants, of which it must be said that their name is legion. We commence with those of climbing habit, amongst which occur two Nicaraguan species of vine of a very ornamental character, namely, *Vitis javalensis*, with cordate velvety green leaves, and compound cymes of bright scarlet flowers; and *V. chontalensis*, with trifoliolate bright green leaves, and a great profusion of scarlet flowers. *Cobaea penduliflora*, from the mountains of Caracas, is a slender graceful climber, with the edge of the bell-shaped corollas divided into five long strap-shaped wavy lobes. *Passiflora Lawsoniana*, a garden hybrid, has ovate-oblong leaves, and handsome reddish flowers, with the corona white at the base, and banded with purple above. Of shrubby habit, we have *Godoya splendida*, from Columbia, a noble plant, with large pinnate leaves, and according to M. Linden, pure white fragrant flowers as large as lilies, arranged in a monster thyrsus. *Posoquera multiflora*, from Brazil, is another magnificent shrub, with broad leathery leaves, and large white fragrant flowers, having a slender tube four inches long. *Delostoma dentatum*, from Ecuador, is a bignoniacous shrub, with large foliage, and erect racemes of large sub-campanulate blush-white fox-glove-like flowers. *Codiaeum* (or *Croton*) *variegatum Hookerianum* is a shrub of remarkable beauty, with the large, smooth, elliptic dark-green leaves marked along the centre rib with a vandyked band of deep yellow; it comes from Erromango. Turning to soft-wooded subjects, *Begonia Sedeni*, a garden hybrid, with some of the blood of *B. boliviensis*, and bearing a profusion of rich carmine-crimson flowers, is one of the most showy of its race, and a most decided acquisition. *Fittonia gigantea* resembles the old *Fittonia* (*Gymnostachyum*) *Verschaffeltii*, in form and marking, but is altogether of larger growth; it is an Ecuador species. *Drymonia turrialvae*, from Ecuador, is of erect habit, with tetragonal stems, robust bullate glistening leaves, shaded with reddish brown, and tubular pale-yellow axillary flowers. *Eranthemum Andersoni*, alias *elegans*, an Indian plant, introduced by way of Trinidad, is a remarkably floriferous ornamental acanthad, its white flowers, with crimson-spotted lower lip, being produced for a long time in succession from the same spikes. *Bertolonia* or *Monolæna primulæflora*, from Ecuador, is a charming dwarf herb, with lustrous dark-green leaves, nestling in the open centre of which come a profusion of rosy-pink flowers on short peduncles. *Peperomia*

argyrea variegata is a Belgian variety, remarkable for its white-margined leaves ; and *P. Verschaffeltii*, from Brazil, has the ovate-cordate leaves marked by longitudinal silvery crystalline glittering bands. *Pandanus Veitchii* is a vigorous-growing South-Sea Islands plant, with the broad leaves handsomely striped with white. *Dracæna magnifica*, obtained from the Solomon Isles, is one of the finest of all the Dracænas, the habit being bold, the leaves remarkably broad, oblong, and erect, and the colour a beautiful soft bronzy-red, margined with rosy-red. *D. excelsa*, from the South-Sea Isles, another fine decorative plant, is something of the same character as regards colours, but has longer and more spreading leaves. *Heliconia densiflora*, grown in the gardens of the Paris Museum, and introduced from Guiana, bears fine coral-red bracts, supporting orange-yellow flowers ; while *H. glauca*, also South American, has tern-green leaves, yellowish spathes, and green flowers with the rachis and pedicels red. *Maranta virginalis major* and *M. princeps* are two grand additions to this fine genus, the first with large roundish, the second with oblong leaves, both beautifully variegated. *Godwinia gigas*, from the Nicaraguan mountains, is the largest arad known ; it has a single decompound leaf, on a mottled stalk 10 ft. high, and an erect dark brownish-red convolute spathe about 2 ft. long, on a peduncle 3 ft. high. *Dieffenbachia nebulosa*, a handsome English hybrid arad, of stocky habit, has the dark green leaves clouded with yellowish-green in the centre, and sparingly spotted with white. *Alocasia Sedeni*, another fine English arad, is furnished with large glossy olive-green leaves, marked with white ribs ; *A. hybrida* seems to closely resemble this ; while *A. Liervallii*, from the Philippines, has very large leaves of a clear bright green. *Phædranassa Carmioli*, from Costa Rica, and *Griffinia dryades*, from Brazil, are two fine stove amaryllids, the former with drooping bright red flowers, tipped with green, the latter with 10-13 large blue-lilac flowers, elevated on a tall, stout scape, both welcome additions to our collections of stove bulbs.

Last, but not least, come the Orchids. Here we find numerous accessions to our lists, including many choice subjects. In the Malaxeous division come *Dendrobium crassinode*, from Arracan, remarkable for its knotty stems, and its large white yellow-disked flowers tipped with rose-colour ; and *D. Jamesianum* and *D. cariniferum*, both Indian, both in the way of *D. infundibulum*, with large white flowers, marked on the lip with cinnabar-red, and both of the nigro-hirsute group, but distinguished, the first by certain asperities on the lip, the second by the keeled sepals. To these must be added, *Restrepia antennifera*, a diminutive plant, but quite a gem, the curious flowers being a rich tawny brown, thickly marked with small deep purple dots, and the petals narrow and antennæ-like. In the Epidendreous group we find *Epidendrum syringothyrsus*, a Peruvian species, with tall reed-like stems, and terminal panicles of numerous rosy-purple white-lipped flowers ; *E. conspicuum*, from Brazil, bearing large white and rose flowers, in which the lip is deep amaranth edged with white ; and *Lælia purpurata alba*,

a variety with pure white sepals and petals, and faintly-tinted pale rose-coloured lip. The Vandeous division is more extensive. There is *Vanda Denisoniana*, from Burmah, welcome as a handsome white-flowered Vanda; *Saccolabium bigibbum*, a curious little plant, with bunches of small waxy-looking yellow flowers of great beauty when closely examined; *Aerides japonicum*, from Japan, remarkable as a greenhouse species, with racemes of neat white purple-lipped flowers; and *Cymbidium tigrinum*, from Moulmein, a pretty dwarf species, with large olive-green flowers, having the white lip marked by transverse bands of purple. Several fine Oncids have made their appearance, e.g., *Oncidium Rogersii*, a splendid variety of the Brazilian *O. varicosum*, with panicles of extremely showy flowers, having a clear yellow reniform lobate lip (see plate); *O. splendidum*, from Guatemala, also a showy-flowered species, with a large, obreniform, bright-yellow lip, narrowed to a broadish claw-like form at the base; *O. euxanthinum*, another Brazilian plant, in the way of *Rogersii*, but smaller, and having the bilobed lip smooth at the edge, and of remarkable substance; and *O. fuscatum*, from Peru, with the flowers purple, tipped with white, the large oblong-flabellate lip orange-coloured bordered with purple on the disk. *Odontoglossum Alexandræ Warneri* is a very beautiful and distinct variety of that exceptionally fine species; it has rosy-stained sepals, with a few large deep bronzy spots, large white fringed petals, and a white lip yellow towards the base, and spotted in the middle portion. *O. triumphans Marshallii* is also a most charming Odontoglossum, the sepals and petals being thickly blotched with cinnamon brown, the petals toothed, and the lip white with a frilled yellow crest and brown tip. In *Brassia Lawrenceana longissima* we have a magnificent Costa Rica plant, with deep tawny orange sepals 7 in. long, marked with a few large purple spots, the lanceolate pale yellow lip of which is spotted near the base. *Miltonia virginalis*, from Brazil, may be compared to a pure white *M. spectabilis*, but with a large radiate blotch of rich violet at the base of the lip; while *M. Regnellii purpurea* is a beautiful dark violet-lipped variety of that species. *Pescatorea (Zygopetalum) Wallisii*, an inhabitant of Central America, comes to enrich our stores with its creamy-white purple-lipped flowers, in which the front lobe of the lip is of a deeper purple, and the white ruff is conspicuous towards the base. *Mormodes uncia alias Greenii*, a remarkably handsome acquisition, has the large racemose flowers yellow, thickly spotted with deep red, and the fringed front lobe of the lip is of a purple-lilac colour. The Vanilla group gives us the *Vanilla Phalaenopsis*, of Madagascar, a beautiful leafless scandent epiphyte, with large blush-white flowers, having a deep orange trumpet-shaped lip, rosy on the outside. Finally, among the Lady's Slippers, we have to enumerate as novelties *Cypripedium pardinum*, *niveum*, and *Parishii*, all of Indian origin, the first related to *venustum*, the second to *concolor*, and the third to *glanduliferum*—three very distinct and strikingly beautiful species, worthy a place in the choicest orchid collection.—M.

GARDEN GOSSIP.

THE best mode of *Transporting Fruit trees* to our distant *Colonies* is pretty clearly indicated in the following extract from the annual report of the Horticultural Society of Victoria for 1869. The Society received from Chiswick Garden, in April, 1868, some cuttings of fruit trees, taken in October, 1867. "There being no stocks in a condition for grafting when the cuttings were received (April), the scions were preserved until the following August, when they were grafted." A period of more than nine months thus elapsed from the time they were cut from the trees; nevertheless, 66 Apples, 72 Pears, 24 Figs, 5 Vines, and 8 Plums were saved of this consignment. The experiment proves conclusively that in the form of cuttings all fruit trees may be transported with the certainty of success and in a very simple and inexpensive manner, inasmuch as a case of 4 cubic feet capacity will contain some thousands of cuttings, and such a case may be hermetically sealed, and stowed away like ordinary merchandise during the voyage.

— THE schedule of the *Manchester National Horticultural Exhibition*, which is to open on the 3rd of June next, offers special prizes, amounting to upwards of £130 under 14 classes, the highest prize being the citizens' prize, £30, for 16 stove and greenhouse plants. The other part of the schedule extends to 73 classes, with £900 allotted as prizes. We are glad to see that groups of miscellaneous plants, 30 for amateurs and 50 for nurserymen, are invited; and trust that with the large miscellaneous classes introduced in other exhibitions something may be done towards reinstating that variety which formerly was one of the crowning elements of great flower-shows.

— AMONGST the *Trees and Shrubs* which have been recently observed to do well by the seaside, notably on the Kentish coast, occur—Austrian Pines; *Euonymus japonicus*, which is in some cases covered with fruits; Evergreen Oaks, Common Bays; *Veronica Andersoni*, in bloom; *Lavatera arborea*; Tamarisk, and Gorse, these all being green and fresh as if there were no such things as "nor'-easters" or "sou'-westers." *Atriplex Halimus* is commonly planted on the Dorset coast.

— THOUGH Plant-houses may be fumigated by means of the flower-pot and embers, yet Fumigators are far more convenient. *Drechsler's Patent Fumigator*, recently brought out, consists of an iron cylinder, enclosing a strong wire basket, made to revolve by means of cog-wheels placed underneath, and turned by a handle projected from the side. The smoke is carried off and delivered into the house through a square horizontal chimney of considerable size. This Fumigator, which is worked easily, may be set in operation by simply igniting a piece of paper with a lucifer match; and it may be used without subjecting the operator to be "smoked," like the insects he is bent on destroying, for, by putting the chimney through an aperture made in the wall of the house, the operator may stand outside while the machine is pouring forth into the interior its narcotic smoke-clouds. In the case of frames and pits, the chimney may be introduced under the front part of the sash. We have had the apparatus in use, and believe it may be recommended with safety.

— IT would appear from the recent observations of Mr. Gwyn Jeffreys that *Plant Life is absent from the Ocean*, with the exception of a comparatively narrow fringe, known as the littoral and laminarian zones, which girds the coasts, and of the *Sargasso* tract in the Gulf of Mexico. No trace of any vegetable organism could be detected at a greater depth than 15 fathoms, though animal organisms of all kinds and sizes, living and dead, were everywhence abundant, from the surface to the bottom. The usual theory, he observed, that all animals ultimately depend for their nourishment on vegetable life, seems not to be applicable to the main ocean, and consequently not to one-half of the earth's surface.

— MR. TILLERY has recently drawn deserved attention to the *Black Monukka Grape*, an old variety not very well known, which he regards as the

bonne-bouche of all the race hitherto raised; its seedless, long narrow berries are crisp, juicy, and refreshing, with a sweet agreeable flavour, and may be eaten, skins and all, with the greatest gusto. It is likewise one of the very best black Grapes for using in jellies, its very long, small-shouldered bunches yielding an immense supply when clipped off in small clusters for that purpose.

— THE use of *Sublimed Sulphur*, as a means of checking *Vine Mildew*, is sufficiently familiar. According, however, to the observations of M. Marés, flowers of sulphur, when cast on the soil of vineyards, is also effectual for the same purpose, becoming converted into sulphuric acid, which then combines with the lime in the soil to make sulphate of lime. Whether the chemical change takes place merely from the direct action of the oxygen of the atmosphere, or from the sulphuretted hydrogen emanating from the manure in contact with the sulphur, does not appear certain, but it is found that its effects are very beneficial in the repression of the Vine mildew. It would clearly be a great gain, both to Vine-growers and Hop-growers, if the parasite could be thus arrested, and it would be well worth the attention of our more intelligent cultivators if they would make experiments with the view to determine this point.

— THE *Pentstemon* has lately undergone considerable improvement at the hands of the florist, and the Continental novelties have proved remarkably good. The following may be taken as some of the best:—Richard Llanour, lilac-purple, beautifully pencilled throat; George Bruant, white, suffused with lilac; Surpasse Victor Hugo, scarlet, with conspicuous white throat; Pauline Dumont, pale rosy lilac throat, beautifully pencilled; Indispensable, rose, rich crimson pencilled throat; Bons Villageois, dark red, throat white, faintly pencilled; Grinchu, purplish lilac, white pencilled throat, large, and very distinct; Léon la Prevoste, crimson; Grande Condé, deep crimson, conspicuous white throat; Josephine Dumont, a lighter-shaded crimson, with a richly-marked throat; and Richard Gutterman, scarlet, very showy, and one of the best. Some varieties are remarkable for their dwarfness of growth, and compact free-flowering habit, and of this very pretty and useful class the following are amongst the best:—Emile Chate, crimson, pencilled throat; Molière, of a pale lilac tint, with deeper-marked throat; Apollon, scarlet, white throat, large and fine; Duc Job, rosy red, deep crimson throat; Maria Heed, pale lilac, pure white throat; and Henry Rerson, rosy scarlet, with white, faintly-lined throat.

— THE conditions under which *Disa grandiflora* grows on the summit of Table Mountain have been described by the late Dr. Harvey in these terms:—This summit is very frequently enveloped in mist, especially at the season when the Disa blooms. It is very cold also, and the mist comes accompanied with a strong cold south-east wind. After this succeeds the scorching sun of lat. 33°. The plant only grows along the steep, boggy, spongy margins of a stream, which has water in it at all seasons, but which in winter must be so swollen as to cover the plant. The margin is completely clothed with the Disa, but immediately beyond is a margin of Restias, which, bending over, afford considerable shade to the roots and foliage, leaving the flower-stalks room to peep out at the sun.

Obituary.

— MR. JOHN SLADDEN, surgeon, of Ash, near Sandwich, died on January 3rd, in his 58th year, after a painful illness. He was not only a keen florist, but a most estimable man; and also occupied a prominent position as a raiser of new flowers, the Gladiolus being one of his special favourites. As an occasional contributor to our pages, we owe this brief record as a tribute of respect to his memory.

— MR. JOHN BROWN, for many years gardener to the late Lord Herbert of Lea, at Wilton House, died on December 23rd, at Newton, Bromley, Kent, in his 71st year. When, owing to impaired health, he retired, in 1860, an annuity of £100 was settled upon him for life.

The Fairy Apple
J. N. Fitch, imp.



THE FAIRY APPLE.

WITH AN ILLUSTRATION.

NOTWITHSTANDING the efforts which the late Mr. Thomas Andrew Knight made to cross existing varieties of the cultivated Apple with the Siberian Crab, they all failed to produce a result which has been of any real benefit. Mr. Knight's object in thus crossing these individuals was, as he states, "to obtain such fruits as vegetate very early in spring by introducing the farina of the Siberian Crab into the blossom of a rich and early Apple; and by transferring in the same manner the farina of the Apple to the blossom of the Siberian Crab." At the time Mr. Knight wrote this, the trees so produced had not yet borne fruit, but he observes, "the leaf and habit of many of the plants that I have thus obtained possess much of the character of the Apple, whilst they vegetate as early in the spring as the apple of Siberia, and appear to possess an equal power of bearing cold." But what was the result of these carefully performed experiments? From this crossing we got the Siberian Bitter-Sweet, which, Mr. Knight himself says, "is wholly worthless, except for the press," that is, for cider-making. Then the Siberian Harvey has a juice so "intensely sweet," that it, too, can only be used, mixed with other apples, for cider. Both of these were raised from the fruit of the Siberian Crab, fertilized with the Golden Harvey, one of our best dessert apples. Another called Foxley was also raised from the Siberian Crab, but the male parent was the famed Golden Pippin. Yet the Foxley is a worthless little apple, not so large as some gooseberries, and fit only for cider.

It is interesting to watch these struggles between philosophy and nature. Philosophy says, "I will," and nature replies, "You won't." But when left to herself, Nature fashions an object without the philosopher's aid, excelling in merit all that he had dreamed of. Here we have such an instance in the little FAIRY APPLE, of which our illustration is a faithful representation. This, too, was raised from the fruit of the Siberian Crab, but without any human aid. What is its parentage and how it was produced no one knows; but there it is, a haphazard foundling, destined and worthy to take its place among the worthiest of its kind.

Whether for its beauty or its excellence as a dessert fruit, the FAIRY APPLE cannot fail to become popular and valuable. In colour, size, and form it rivals the Pomme d'Api or Lady Apple, so much vaunted, and which makes the fruiterers' windows and our desserts gay during the dreary months of winter. For this purpose, the FAIRY will command the attention of all growers of dessert fruit in large establishments, and for commercial purposes; for not only does it commend itself by its great beauty, but its flavour is similar and not inferior to that of the Old Golden Pippin, its flesh being of a fine deep yellow, with a rich and briskly-flavoured juice.

The fruit is produced in clusters of from three to five, much in the same way

as clusters of Cherries. They are $1\frac{1}{2}$ in. wide, and about $1\frac{1}{4}$ in. high, rather flattened at both ends, consequently inclining to the oblate form, and very even and regular in the outline. The skin is smooth and shining, covered with bright lively crimson, shaded with streaks of a deeper tinge, and on the unexposed side it is lemon-yellow. The eye is closed, set prominently, almost level with the surface, and surrounded with plaits; stalk sometimes less than $\frac{1}{4}$ in. long, and frequently straight, slender, and as much as an inch or more, inserted in a small, shallow cavity, which is russety. Flesh of a fine deep yellow, firm, crisp, very juicy, with a rich brisk flavour, and fine delicate aroma when eaten with the skin on.

The fruit comes into use in December, and lasts till well on in the season. It is now (February) in perfection, and has the appearance as if it would last for some weeks on into April.

This desirable acquisition was raised by Mr. Jennings in his nursery at Shipston-on-Stour, from seed of the Scarlet Siberian Crab or Cherry Apple. The seed was sown with no intention of raising new varieties of fruit, but for stocks on which to graft the ordinary varieties of apples. One of these showing signs of fruit, Mr. Jennings grafted it upon a free apple stock, and from one of the trees so produced the fruit now figured was obtained.

The parent tree from which the seed was taken is growing in an orchard consisting of such varieties as Ribston Pippin, Wyken Pippin, Blenheim Pippin, Margil, Hanwell Souring, and Pearmain. That which is in closest proximity to it is Margil, and it is not improbable that this was the male parent. The tree is of moderate vigour, with an erect habit of growth, and is hardy and prolific. The young wood is moderately stout, of a dull purple colour; and the leaves downy, elliptical ovate, evenly serrated, with a stalk half-an-inch long.

Another and not an unimportant recommendation of the FAIRY APPLE is that it makes a delicious preserve.—R. HOGG.

EARLY PEAS FOR FORCING.

AVING for the last two or three seasons tried the early dwarf marrow Peas for growing in pots, and for forcing in pits, I find that they are better adapted for these purposes than the tall early sorts, such as Ringleader, Taber's Perfection, and others. They are not so early by a week or ten days, but make up for this by their better-filled pods, size of peas, and flavour. This year, in addition to *Turner's Little Gem*, I am trying *Multum in Parvo*, and the new dwarf *Alpha*. They were all sown in the beginning of January as a second crop, and I am now able to state something about their style of growth. *Little Gem* and *Multum in Parvo* are much alike in appearance and height, but *Alpha* is taller and more spindling in its habit than the others. The sparrows and mice must be debarred from tasting a morsel of this new sort, for every pea, if counted, would come to something, at the present price of 30s. per quart.

I find, in growing these dwarf marrow peas in pots, that a rather strong loamy soil suits them best. The pots must be rather deep, and half filled with pieces of turf, only using one piece of crock or oyster-shell on the hole in the bottom for drainage. Low pits, slightly heated with hot-water pipes or flues, suit these dwarf varieties well, and fine dishes of large, well-flavoured peas can be had at the end of April or beginning of May, if the first crop is sown in October or November.—WILLIAM TILLERY, *Welbeck*.

THE GARDEN MENTOR.

MARCH, according to the old proverb, “comes in as a lion, and goes out like a lamb.” The weather for some years past has generally been cold and boisterous during the greater part of the month, and very unfavourable for out-door work. With March the winter closes, and spring commences, bringing with it its many cares, anxieties, and labours. Every interval of fine weather should be made the most of in pushing forward out-door operations; there must be no deferring until to-morrow what can be done to-day.

KITCHEN GARDEN.—If the soil has been thrown up during the winter as directed, it will now be in a nice pulverized state, fit for the reception of the early crops, and advantage must be taken of dry weather to get in the seeds. One of the principal conditions on which success depends is the state of the soil, which at this season of the year can hardly be too dry. Seeds should never be sown when the soil is very wet, as they are then liable to rot, especially if covered deeply. It is much better to wait until the soil is in a dry mellow state, as the young plants come up much stronger, and grow away more vigorously afterwards. The planting of the *Early Potatos* should be commenced at the beginning of the month, and towards the end all the main crops should be got in. When the weather is mild, the *Cauliflower* plants in pots should be planted on a dry, warm, sheltered border; draw a little dry soil around them, and keep them well watered in dry weather; they will head early in June. *Cauliflowers* and *Lettuces* in frames should be planted in the open ground; these will come in after the others. *Globe Artichokes* should now have their spring dressing; the suckers should be thinned out, and a good dressing of dung should be dug in around the plants; while a row of the best suckers should be planted to succeed the general crop. *Peas*, as they advance in growth, should be earthed up, and rodded. *Tripoli Onions* from the August sowing should be planted in rows. *Asparagus* beds should be lightly forked over, raked, and the edges trimmed. In dry weather the hoe should be run between the rows of *Cabbages*, *Cauliflowers*, *Lettuces*, and all growing crops. If not already done, *Horse-radish*, *Jerusalem Artichokes*, *Rhubarb*, *Seakale*, *Garlic*, and *Shallots* may be planted. *Sage*, *Mint*, *Thyme*, *Tarragon*, and other *Herbs* may now be planted, and propagated by slips and divisions of the roots.

Sow: Peas and Beans twice during the month for summer crops; the main crop of Onions

as early in the month as possible ; the soil, if dry and not very heavy, can hardly be made too firm, by treading, for these. Carrots and Parsnips for main crops towards the end ; Round Spinach and Turnips for succession ; Asparagus towards the end of the month ; Savoys, Brussels Sprouts, and Broccoli at the beginning of the month ; Parsley a good breadth ; Radishes twice during the month ; Cauliflowers and Lettuces about the middle of the month ; Mustard and Cress in a gentle hot-bed. Celery, Tomato, and Capsicums in hot-bed ; Sweet Marjoram, Sweet Basil, and other herbs in a gentle hot-bed. All vegetables are best sown in drills ; grown in this way, they are generally larger and finer, and it facilitates the labour of thinning and hoeing the crops.

FORCING-HOUSES.—*Pines* : Where the bottom-heat is supplied by tan or leaves, it will now require looking to. Sufficient fresh material should be added to the beds to carry the plants now showing fruit, as well as those about to show, through the season ; those swelling off their fruit should have more water given them. Plants showing fruit and in flower will require attention in maintaining a dry warm atmosphere, and in giving air daily, if possible. The succession plants will require shifting, which should be done as carefully and expeditiously as possible, so as to prevent any injurious consequences to the plants ; after potting, they should be kept rather close for a week or two, until they begin to root into the fresh soil, when air may be admitted more freely. *Pines* will grow in a great variety of soil, but they dislike sandy or chalky soils ; I have grown them for several years in a sort of peat we get in the park here, and they root in it freely, and grow away vigorously. *Vines* : Maintain a steady night temperature in the early house whilst the stoning is going on. Attend to the thinning, stopping, and tying-down of the shoots in the succession-houses, and to the thinning of the berries as soon as possible after they are nicely set. *Muscats* should have a night temperature of 70° whilst they are in flower. *Peaches* : Attend to the tying-down of the shoots as they advance in growth ; look carefully over the trees, and if too many fruit are still left on, remove some, leaving a few more than sufficient for a crop until after stoning, as some may drop off then ; water inside borders freely, and give abundance of air as early in the day as the weather will permit. Attend to disbudding and the thinning of the fruit in the succession-houses ; syringe daily, and maintain a moist atmosphere. *Figs* : Those in pots and tubs will now require to be watered liberally, and occasionally they should have some liquid manure ; syringe over-head on fine days. *Cherries* : These will require careful management whilst stoning ; keep a steady night temperature of from 55° to 60° ; see that there is a gentle bottom-heat, and give air freely if the weather permits. *Cucumbers and Melons* : If grown on dung-beds, attend to the linings, so as to keep up a proper heat ; earth up, stop shots, peg down, and water as they require it. When grown in pits heated with hot water, there is much less labour and trouble in growing them. Sow for successional crop.

HARDY FRUIT GARDEN.—All pruning and nailing should now be completed with as little delay as possible. As soon as the blossoms begin to expand, but not before, apply protection to *Apricots*, *Peaches*, and *Nectarines*. Good strong canvas is as cheap and efficient for temporary protection as the generality of materials recommended for this purpose ; it should be so fitted that it can be

easily put on at nights and removed during the day. There is a good promise of bloom this season, and if well protected, there is nothing to prevent us from having good crops.

FLOWER GARDEN. — *Plant Houses*: *Soft-wooded Plants* should now be encouraged to make free growth. Shift *Fuchsias* as they require it, syringing them over-head on fine days, and keeping a moist, growing atmosphere; see remarks last month. The specimen *Pelargoniums* will now need a good deal of attention; train and tie out the shoots as they advance, and water freely; fumigate with tobacco-paper for green-fly. *Hard-wooded Plants* such as *Camellias* and *Azaleas* should be well supplied with water; large plants of *Acacia*, *Pimelea*, *Eriostemon*, &c., coming into bloom should be carefully and promptly watered; ventilate freely whenever the weather permits. Proceed with the potting of all young growing plants, using a suitable compost, with clean and well-drained pots. Newly-potted plants require watering with care; indeed, it is best not to water them for several days after potting, and then to do it effectually. They should be kept rather close, especially if the weather be cold, for a few weeks after potting, until they begin to grow, when air should be admitted more freely.

Pits and Frames. — Push forward with all the despatch possible the potting of *Bedding Plants* of all kinds from the store pots. Cuttings of *Verbenas*, *Lobelias*, &c., put in last month, should be potted off as soon as rooted, and the frames filled immediately with more cuttings of these or other plants that will be wanted at “bedding time.”

Sow: In bottom-heat, *Cinerarias* and *Primulas* for autumn flowering; *Petunias*, *Cyclamens*, *Cannas*, *Celosias*, *Humea elegans*, *Tropæolums*, *Balsams*, *Zinnias*, and seeds of all kinds of tender plants.

Out-Doors. — All the hardy *Roses* should be pruned at the beginning and the tender ones towards the end of the month. As a number of spring-flowering plants will now be coming into bloom, look frequently over rock-work and spring gardens, and maintain the greatest order and neatness. Sweep and roll walks and lawns weekly, or oftener if necessary. Towards the end of the month prune and dress hardy trees and shrubs; dress and dig borders; see that all newly planted trees are properly secured to stakes, and if not already done, mulch the roots with rotten dung or leaves.—*M. SAUL, Stourton.*

SELECT AURICULAS.

NE of the finest collections of Auriculas within a moderate distance of London is, no doubt, that of Mr. Turner, of Slough; and judging from the plants brought to the metropolitan exhibition, we may fairly award to Mr. Turner also a first place amongst the cultivators of these quaint but attractive florists' flowers. Mr. Turner has very obligingly furnished us with the annexed brief list, indicating the very choicest of the cultivated varieties, old and new; and his position as a grower and judge of these flowers, together with his

unrivalled means of observation, must give a special value to such information from such a source :—

Green-Edged Varieties.

- Apollo.
- General Havelock.
- General Neil.
- Lord Palmerston.
- Lycurgus.
- Ensign.
- Geo. Lightbody.
- Miss Giddings.
- Richard Headly.
- Sophia.

White-Edged Varieties.

- Countess of Dunmore.
- Fair Maid.

Robert Burns.

Smiling Beauty.

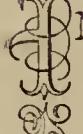
Self-coloured Varieties.

- Blackbird.
- Cheerfulness.
- Mrs. Sturrock.
- Webster.

Alpine Varieties.

- Brilliant.
- Brutus.
- Edwin.
- King of Crimsons.
- Marion.
- Masterpiece.

LADY'S SLIPPERS.—CHAPTER II.

                        <img alt

This kind of gardening I am very desirous of seeing extended, because I am quite sure a vast amount of real enjoyment is to be derived from it, and by just that class of plant-lovers whose garden-ground does not give them sufficient space to erect plant-houses, or whose means will not permit them to indulge in such a luxury—and a collection of beautiful plants, be it ever so small, is undoubtedly a luxury of the highest degree to persons of refined taste.

Having strayed, however, somewhat from my Slippers, I must return to offer a few concluding remarks, before commencing a description of those at present in cultivation. After the plants are established, and the season advances, be sure they do not suffer from want of water. Take the sashes off the frame during the nights to allow them the full benefit of the dews, which all plants enjoy so much, and give them an occasional light syringing to prevent them from being colonized by red-spiders—remarkably enterprising emigrants, who are always on the lookout to gain a new settlement where a rich pasturage may be found. As Autumn approaches, and when the floral beauties of the *Cypripediums* have passed away, and the leaves give evidence that their mission is over, water must be gradually withheld, but never so far as to allow the soil to get dry. During Winter, if the frost is very severe, the soil may be covered with a layer some few inches in thickness of ashes, cocoa-nut refuse, or any such material, to prevent its penetrating to the roots; but be careful not to keep it there sufficiently long to draw the plants up, and cause them to have long, weak stems.

I shall next proceed to give a short description of each species, at the same time noting any peculiarities of its culture.—B. S. WILLIAMS, *Victoria Nursery, Holloway.*

FLOWERS.*

“ CONSIDER THE LILIES OF THE FIELD EVEN SOLOMON, IN ALL HIS GLORY, WAS NOT ARRAYED LIKE ONE OF THESE.”

*W*ITH what emotion glows the inmost soul

In contemplation of the mighty power
Of those twin-sister children of the mind,

Painting and Poetry, this on the page,
That on the canvas, tracing wondrous scenes
Of human life and Nature's beauteousness.
Subservient both to Genius, within bounds
Which even Genius may not overleap !

* * * * *
The limner's pencil and the poet's pen
Alike are impotent to designate
The loveliness of flowers, those “stars of earth,”
That sparkle on her ever-joyous bosom,
Like jewels in the girdle of a queen.
Yet who but feels their beauty, whether it be
Of form or colour, odour exquisite,

Or infinite variety ? While some
Uprear their lofty heads in gaudy pride,
As if self-conscious of their glowing charms,
Others, meek emblems of humility,
Scarce rise above the ground whereon they grow,

To woo the matin sun. The VIOLET thus
Blooms unassuming on the grassy bank,
Scattering her perfume wide, herself unseen.
Close by, her sister PRIMROSE, herald meet
Of coming Spring, peeps mildly forth and smiles
Upon the traveller's journey, far admired
By botanist and poet, and by all
Who, with the lowliest of created things,
As with the most exalted, love to hold
Deep converse and communion mystical,—
Who worship Nature in her holiest fanes,
And seek, amid the creatures of their God,
The glorious and the beautiful. From out

* These lines were written some years since by our valued correspondent, the late Mr. John Sladden, whose recent death was recorded at page 48.

The ice-bound earth, see how the SNOWDROP
 bares
Her hardy bosom to the frosts of heaven,
Not long to pine in solitude ! Impelled
By pleasing rivalry, the emulous CROCUS,
In cloth-of-gold or purple vest bedight,
Steps gaily forth, and boldly challenges
Old Winter to the combat. He, secure
In rugged veteran strength, looks grimly down,
Contemptuous, on the stripling, as, of yore,
The pagan giant smiled, with proud disdain,
On Israel's shepherd-champion. But the
“man

Of war” confronts an agile foe, who seizes
The veil of Spring, and with a dexterous cast
Involves the hoary tyrant in its folds,
And half obscures the terrors of his form.

Soon as the wreathed snow dissolves away,
Death-smitten by the dart of vernal sun,
The liberal earth again unlocks her casket,
And scatters widely, with unsparing hand,
Her treasures hoarded well and thrifitily,—
Gems of surpassing lustre. Shrinking now,
Abashed to meet the rapturous gaze of light,
The LILY OF THE VALE, clothed like a bride,
Peeps from her lowly bower, scarce recognized
Amid its circling verdure, waiting there
The morning splendour and the dews of eve.
Quail not, thou timid one, nor shun the glance
That joys to dwell upon thee ! Virtue knows
No fear ; and pure unspotted Innocence
May stand erect throughout the sultry hour,
Despite the burden and the heat of day.

Nor less your beauty, unpretending flowers,
“Wee, modest, crimson-tipped,” that deck the
meads

With infinite profusion, whispering low
Of gales all softness and of hours all sun !
Humble although ye be, yet are ye dear
To every heart : in every ear your name,
Lisp'd by the prattling tongue of infancy,
Soundeth “familiar as a household word.”
Ay, little children love you well ; and that
Which doth attract their love must ever be
A richly cherished object. Poets too—
Whose souls are oftentimes more near akin
To those of children than the world doth
dream—

Have marked your simple graces, nor withheld
The tribute of their numbers. Even so
Your fame approaches to the pinnacle
Of immortality ; for ye did prompt
One of the sweetest of those deathless songs
Warbled by Caledonia's peasant bard.

But though, amid theso ornaments of earth,
Each boasts its separate charm, none may
 presume
To rival the attractions of the ROSE.
Magnificence and grace ineffable
Pervade her form ; therewith she mingles hues

Of every shade denoting life and love
And healthful animation ;—from the pure
Transparent white abiding on the brow
Of thoughtful maiden—to the delicate blush
Suffusing her pale cheek, enkindled there
From that mysterious flame which permeates
The subtle spirit,—to the ruddier tinge,
Charged from the liquid fount of very life,
Incessant mantling on her glowing lips,—
Or to the more intensely crimson dye
Of the warm current ever gushing on
Through the deep channels of her throbbing
heart.

Nor to the eye alone commends herself
The Queen of Flowers. The concentrated
odours

Of all her subject race, combined in one
Impalpable, amalgamated essence,
Would fail to match the fragrance she exhales.
With boundless prodigality, while yet
Her store decreaseth never. In the climes
Of the delicious East, where the fair Rose
Receives no stinted homage, bards have striven
To grace her beauties with an added charm :
Thus have they feigned her as the chosen
bride

Of the melodious Nightingale, who chants
His serenade, not for the listening stars,
But for her ear alone. From such conceits
Roves Fancy to traditions of old time—
Fantastic, yet poetic—of the change
Of youths and nymphs to trees and flowers,
 all bearing

Some semblance of their pre-existing state
Implanted on their forms ;—the work of gods,
Themselves derived from superstitious men,
In nations much enlightened, save in that
Wherein consists true learning. Fair are ye,
Lilies and Roses ! Every flower that grows
Bears in itself peculiar loveliness :
Would ye were all undying ! Bootless wish !
And impotent as bootless : for ye pass
So quickly from our vision, that ye are
Fit types and emblems of mortality !
Ye bud, ye bloom, aro lovely in your prime,
As transient in your being, but so soon
Ye droop, and fall, and perish, that the sun
Can scarce mature your beauty, ere ye lapse
Among the things that have been, leaving still
Young blossoms, your successors, which will
 fade

E'en as yourselves have faded. So doth man
Walk in life's garden for a passing hour,
Then find his home beneath the soil he trod,
Mouldering and soon forgotten : and his sons
Live in his stead. So individual man
Is mortal and corruptible ; each one
Bows to the grave, and feels the primal curse
On his own spirit. As himself hath known
Sin and transgression, so he knows the power
Of that dread sentence, “Thou shalt surely
die.”

Thus fall the sons of earth ; but 'tis not thus

In their collective being. Since the first
Of human kind was fashioned has that race
Been living and increasing; yea, throughout
Time and Eternity shall man remain
Unceasing and immortal. Like the flower
Born in the field, so passeth he away,
Leaving the scene for others. Like the flower,

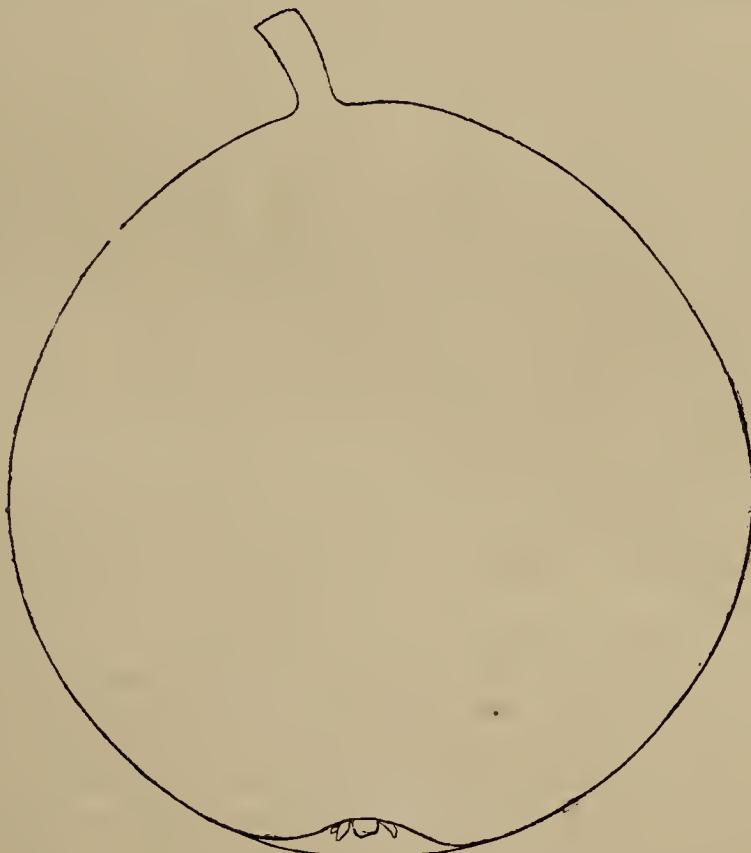
He dies and is forgotten, and the place
Of his lone dwelling hears his name no more.
Each fills his several station in the world,
As Wisdom has directed; but herein
Trace we no parallel,—though both “go hence,”
One but departs, the other dies for ever.

J. S.

THE RONDELET PEAR.

HERE is an old Pear, very little known and almost neglected, which, in all that constitutes a good Pear, is far in advance of nine-tenths of the varieties whose names we find continually or repeatedly coming before the public.

The past year, 1869, cannot be said to have been at all a propitious one for fruits. Pears especially were remarkably deficient as regards flavour.



Rondelet, however, proved remarkably fine, and was voted by many competent judges, on tasting it in the fruit-room here, in comparison with about fifty other varieties in use at the same time, as by far the richest and most pleasantly flavoured.

The fruit is rather below medium size. Form roundish. Skin greenish-yellow, covered in great part with a fine, thin coat of russet, becoming somewhat darker, and slightly speckled here and there, on the side next the sun, with occasional tinges of crimson. Eye small, like that of the Winter Nelis, and frequently wanting. Stalk short. Flesh very tender, buttery, and melting, with a fine briskly-sweet flavour, and having a strong musky perfume.

It is extremely delicious, and worthy of the most extended cultivation. It comes in season at the end of November, and lasts for some time. It is a variety

exceedingly well adapted for growing as a pyramid tree on the quince stock, and also succeeds well as an open standard. The tree is hardy and a good bearer.—B.

ROSES AND ROSE-CULTURE.

CHAPTER I.—ON SOILS.

FROM a practical point of view, all soils may be arranged under the following heads:—(1), Clayey, which includes the various kinds of loam; (2), Peaty; (3), Sandy or Gravelly; (4), Chalky; (5), Rocky.

1. Clayey soils vary from sandy loam, which contains 60 to 80 per cent. of sand, to strong clay, which may contain a like proportion of the clayey element. Then there are the intermediate soils, friable loam and strong loam. The latter is perhaps that best naturally adapted for Rose-culture. In all such soils, but especially in strong loams, is it most desirable that as a preliminary step in cultivation perfect drainage should be secured. Strong or heavy soils are naturally the most retentive of water, and without thorough drainage we can at best but hope for imperfect success. Where a garden is of such soil, it is advisable, if possible, to drain the whole at least 3 ft. deep. Tiles or pipes are best for the purpose, although good strong bushes, if covered with straw before restoring the soil, are efficacious enough for some years.

Let us, then, suppose the beds in which we are about to plant our roses have been cleared and drained. Next we proceed to trench the ground to the depth of 2 ft., mixing in during the operation a good portion of rich manure and sand, or old mortar. In heavy soils it is important that this be done when the soil works well, and it is well to throw the top spit in ridges, that it may become mellowed by the action of air, frost, and sunshine. Just before planting, the ridges may be levelled down; and at planting time, each plant should have a spadeful of manure in a thoroughly decomposed state mixed with the soil immediately surrounding it. In very strong soils it is probably best to prepare the soil in autumn, leaving it as light and rough as possible throughout the winter, and delaying the planting until March. Lime, old mortar, sand, charcoal, bones, peat, and any decayed vegetable matter are excellent additions to the necessary stable manure for roses in strong soils.

2. Peaty or moory are less common than loamy soils, but if well drained, they are not so unsuitable for roses as some would have us believe. I have seen vigorous, healthy plants, and beautiful flowers produced on such; indeed, for the Tea-scented, Chinese, and Bourbon roses, a portion of peat soil is an advantage. But peat soils are often wet, when they must be drained; they may also be very sandy, when a good proportion of clay, marl, or strong loam should be introduced, and well mixed with the soil in the act of trenching.

3. Sand and Gravel are perhaps the worst soils with which the Rose cultivator has to deal, on account of their too great porosity and aridity. Not only do such soils possess too largely the power of absorbing the sun's rays, but dew,

rain, and water pass from them with such rapidity, that the plants have not sufficient time to avail themselves of these sources of nourishment. A feeble growth, followed by attacks from all sorts of enemies—aphis, spider, mildew—is usually the result. Abundance of cow-dung as manure, with copious waterings and syringings in spring and summer, are the best palliatives; but in extreme cases it is better to remove the soil wholly to the depth of 2 ft., refilling the beds with a good rose soil, composed of loam and manure.

4. Chalk is not a bad subsoil for roses. One of the oldest rose gardens in Hertfordshire, that of Dane End, near Munden, in which the rose has for many years been most successfully cultivated, has a subsoil of chalk, the chalk in some instances rising within a few inches of the surface. There should not, however, be less than 18 in. of a good rose soil, if resting on chalk; and this, if not naturally existing, should be secured artificially, as in the preceding instance.

5. Rocky soils are so various in their nature, that it is difficult to offer any precise or definite rules for their management. Some rocky soils are so soft and yielding, and so rich in the inorganic constituents necessary for the growth of plants, that when they become disintegrated and enriched by animal or vegetable manures, they possess rare powers of fertility. In such, roses grow and bloom with remarkable vigour and beauty. Other rocky soils are hard and unyielding, and require a long course of labour before they can be brought into a suitable state for the delicate operations of gardening, among which we must class the cultivation of the finer varieties of roses. The rocky soils I have had to deal with have generally been like the gravelly and sandy soils in one particular,—too dry in spring and summer; and this may be in great part remedied here as there, by the addition of cool fertilizers and copious supplies of water.

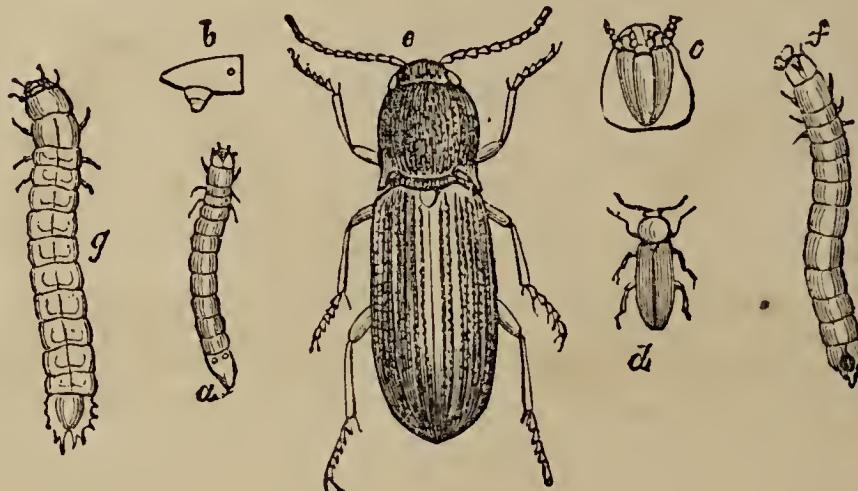
As before stated, we prefer for the general purposes of Rose-culture a strong, deep, well-drained loam, on a subsoil of chalk, clay, or gravel; but if the surface soil be 2 ft. in depth, whether naturally or artificially, we care little what the subsoil may be. Let it, however, be borne in mind that the nature of the subsoil should regulate the system of cultivation. If dealing with soils or subsoils that are light and porous, a top-dressing of cow-dung is beneficial in spring and summer, and copious waterings should be given in dry weather. In heavy soils, it is equally serviceable to keep the surface constantly loose, for which purpose the Vernon hoe will be found an excellent tool.

One thing we should not overlook as practical cultivators, and that is the relation between climate and soil. For instance, roses will thrive better in a loose, porous soil, if the climate be moist and showers frequent, than in situations where but little rain falls, or in exposed places, where the plants are subjected to the drying action of strong winds. Heavy soils, again, which are most retentive of moisture, may be deteriorated by an excessive rainfall, the remedy for which exists in thorough drainage, and the constant loosening of the surface to favour evaporation.—WILLIAM PAUL, *Paul's Nurseries, Waltham Cross, N.*

THE AMATEUR GARDENER'S CALENDAR.

THE issue of a new edition of Mrs. Loudon's *Amateur Gardener's Calendar** affords an opportunity to point out to Amateurs the importance of what may be called the negative side of garden instruction. If it is desirable, as it undoubtedly is, that the uninitiated should be advised as to the operations which they ought from day to day to perform, in order that they may achieve success in their efforts at gardening, it is no less important that they should be taught that there are certain things which they ought not to do, since by some such act—correct, it may be, in itself, but misapplied as to time and circumstances—they may cause great inconvenience, if not irreparable mischief. Such considerations as these appear to have presented themselves to the mind of the authoress in planning this very useful volume, and hence we find a series of directions as to things not to be done in each particular month,—operations which a thoughtless or uninformed person would be very likely to set about, if not warned against the consequences of doing so. This portion of the book was originally written by the late Mr. H. C. Ogle, and the whole text has now been revised and adapted to the present state of garden knowledge by Mr. Robinson.

Being a Calendar, the book is primarily divided into a series of chapters corresponding with the months of the year, and each of these is broken up into four subdivisions:—(1), General Observations and Directions; (2), Things Not to be Done; (3), Principal Operations; (4), Garden Enemies. This latter division is nicely illustrated, and as a sample of the woodcuts we introduce, through the courtesy of the publisher, an excellent representation of the Wireworm, that dire

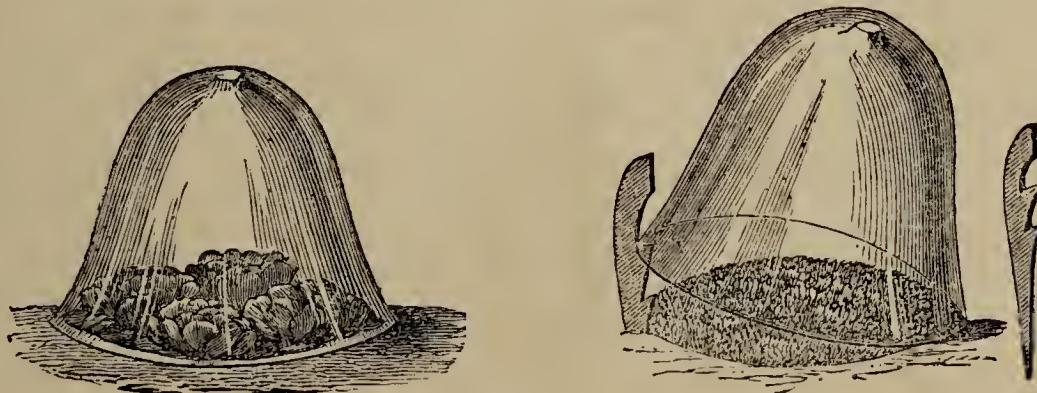


plague of the florist which, by devouring the roots of his pet plants, brings about their destruction. This troublesome grub is the larva of a small kind of beetle belonging to the *Elater* family, and which is represented of the natural size at fig. *d* in the annexed engraving, fig. *e* showing it as it appears when highly magnified. When disturbed, the grub creeps quickly, with a sliding kind of motion, its tail being bent on one side as shown at fig. *a*. There are two other

* *The Amateur Gardener's Calendar; being a Monthly Guide as to what should be avoided, as well as what should be done, in a garden in each month.* By Mrs. Loudon: revised and edited by W. Robinson, F.L.S. With numerous Illustrations. London: F. Warne and Co. Crown 8vo, pp. 376.

kinds of grubs allied to the wireworm frequently met with, but these (shown at figs. *j* and *g*) differ in the terminal section of the body, which in the true wireworm is furnished on the under-side with a large fleshy retractile tubercle (fig. *b*) which it uses as a seventh leg when needful. The under-side of the head is shown at *c*. The perfect insects are not injurious, but the larvæ are dreaded by cultivators. "These receive their popular name of Wireworm from their very hard external integument and long cylindrical form. Mr. Michi holds that salt and water will destroy these pests:—‘I have some land subject to this pest, but for several years having used salt, I have prevented their ravages. ‘Oh, but,’ say or write many farmers to me, ‘I have placed Wireworms in salt, and they continued as lively as grigs, and, therefore, it is clear that salt will not kill them!’ My reply has been, ‘Did you put water with the salt?’ This soon changed their opinion."

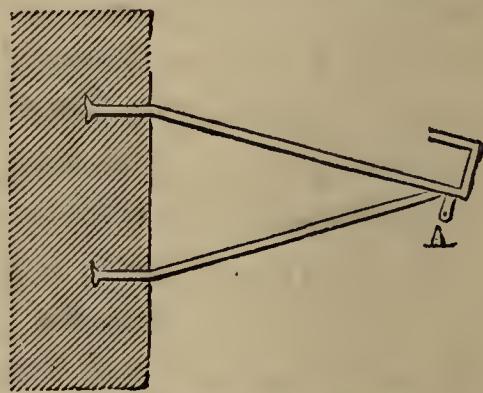
Amongst the modern topics introduced by Mr. Robinson, and which embrace cordon training, orchard houses, ground vineeries, and such-like things, which had not been heard of when the book was first published, one of the most useful for small gardens, is perhaps that relating to the employment of the French *Cloche* or Bell-glass, represented in the accompanying woodcuts. It is an article as yet but little known here, but it is one of great and varied utility. It may be used for winter-salad culture, for raising seedlings, for striking cuttings, or even for keeping clean and fresh during winter such small-growing subjects as parsley. It is simply a large cheap bell-glass, and by its aid the French gardener is enabled to excel all others in the growth of winter and spring salads. Each bell-glass is about 16 in. high, and the same in diameter at the base, and it may be bought at from 10d. to 1s., according to the quantity purchased. Bearing on the utility



of these *cloches* or bell-glasses, it has been recently observed by M. Schlosing, in the *Comptes Rendus*, that the power of absorbing mineral ingredients in solution from the soil is diminished, by cultivating plants under glass in such a way as to diminish the amount of evaporation from their surface. A tobacco plant so grown absorbed 17 per cent. of mineral matter, instead of 20 per cent., as it would do under ordinary circumstances. The production of vegetable acids was found to be diminished by one-half, that of resin and cellulose to a less extent, while the nitrogenous ingredients were not materially decreased. Starch was present to the extent of 20 per cent., instead of to 100th per cent. only. Thus when

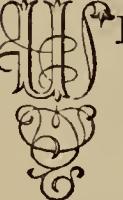
evaporation is reduced in amount, a portion of the starch remains unused, and consequently accumulates in the plant. Assuming M. Schlosing's conclusions to be correct, and that the two staple food ingredients, the nitrogenous and the starchy matters, can be augmented by limiting evaporation, the importance of bell-glass culture becomes obvious.

We turn from this to refer, on account of its seasonableness, to one other matter which has attracted our notice, in turning over the nicely printed pages of the book, and that is, the protection of the blossoms of wall-trees, for which purpose we find a wide temporary coping recommended as the best protection that can be adopted. This temporary shelter is to be made of bitumenized felt or tarpaulin, nailed to light wooden frames of 6 ft. or 8 ft. long, and 2 ft. or more in width, which frames are to be supported by galvanized iron brackets fixed at the top of the wall a few inches below the permanent coping. Such a mode of protection, unless in very cold and exposed situations, would do away with the necessity for using curtains, or other close coverings, which too often do as much harm as good.



The *Amateur Gardener's Calendar* in its new dress is a book that may be honestly recommended to those to whom it is addressed, as likely to afford them ready and welcome instruction.—M.

THE ART OF FORCING FRUIT AND FLOWERS.—I.

E have no very precise data as to the origin of the art of Forcing in this country, but we may surmise, on tolerably good authority, that our earliest ideas or lessons thereupon reached us from Holland. The first insight into this art gained by the Dutch was, it is said, brought about in this way:—An old Dutch gardener, having a good crop upon some new Persian fruit-trees (Peaches) which he was growing, formed the idea of placing lights or "sashes" against some of them during a somewhat inclement season, and with such results as will readily be surmised, for the fruit thus assisted ripened better and earlier than others not so aided.

The advantages which in these days we possess, and which science has afforded us, namely, pellucid glass (as compared with which the talc of olden times was rude indeed), hot-water apparatus, and scientific modes of ventilation, place the modern British gardener in a far more advantageous position than the Dutch could have enjoyed, noted as they were for the success which attended their earliest efforts in this direction. Their forcing operations were, as is well known, carried on mainly by the aid of fermentable materials, and required an amount of watchfulness and application, such as would, in these days of incessant calls upon our time and attention, be sufficient to daunt the best of us.

The first real British patron of the Dutch mode of forcing was Mr. Labouchere, of Hylands Park, Essex. These gardens are still held by a patron of gardening, Arthur Pryor, Esq., brother of my estimable employer ; but modern appliances have long since taken the place of the olden system.

There is one fact in connection with the Dutch practice which I must not here pass over, inasmuch as it leads us to look at matters in a more practical manner than our present routine methods—of which I find no fault—permit. They were wont in the early autumn to take a thriving Peach-tree up by the root, to remove it to the forcing-pit, and there fruit it well, and to return it to a place beside the wall, to make room for others. So they continued, year after year, never, in fact, fruiting the same tree for two years in succession. In fact, by carefully separating the roots, after they had performed their summer office, from the soil which surrounded them, they knew that they had as good a tree to all intents and purposes, as if tons of the old, exhausted soil had been removed with it. They did not, as we too frequently do, consider the soil in which the roots are imbedded, as part or portion of the tree itself ; but, more justly, they looked upon the roots as organs capable of performing their functions quite as well in a fresh and suitable soil, as in the old. But, be it remembered, they exhumed every root and rootlet by removing the soil with the utmost care ; not, as is too frequently the case now-a-days, by a dig here, and a dig there, in disregard of them all, finishing by a strong pull at the main stem. I would earnestly impress this simple fact upon the minds of all young gardeners, namely, that—provided only the necessary care be given at the taking-up process—a moderate-sized cultivated deciduous plant may be removed with perfect impunity to the extent even of at once forcing it into growth, and flowering it, and fruiting it some months before its natural season.

Here let me pause, to refer to the fact that many gardeners, in advertising, speak of being efficient in both *late* and early forcing. When we consider that to force signifies to hasten the maturity of fruits, flowers, &c., this expression, *late forcing*, grates upon the ear.—WILLIAM EARLEY, *Digsowell, Welwyn*.

THE GLADIOLUS IN 1869.

 VISIT just paid to my bulb-room reminds me that my report on the *Gladiolus* is still unfurnished for the year just ended ; and my experience as a practical cultivator tells me that, to be of use for the guidance of florists for 1870, the sooner it is before the public the better. The year 1869 was, on the whole, unsatisfactory for the *Gladiolus*. I planted the bulk of my stock in the second week of February, and all before the end of the month, in fresh loam enriched with a moderate supply of old cow-dung, and made friable by the addition of some river-sand—the soil they seem to like best. Too heavy manuring I have found injurious, as it tends greatly to increase the propensity in the bulbs to rot and melt away. They showed above-ground in due

time, and then for nearly two months had to contend with bitter east winds, and almost nightly frosts ; and though I cannot say I lost a single bulb outright in the early season, the evidence of the struggle for life was plain to the most careless observer, in the stunted growth, and pale, sickly foliage of the entire stock. About the middle of June things began to mend, and thenceforward a rapid growth took place, but the main bloom was later than usual, and there was a marked deficiency in the rich vigorous appearance of foliage and brilliancy of spike, which a good grower is fairly entitled to expect as the reward of his labours. I planted all my stock about 3 in. deep, and top-dressed them in June and July. I watered gently every day (as soon as the real summer weather set in), from the end of June to the middle of August.

My note-book tells me also that a large proportion of my stock did not bloom at all, being marked late—that is to say, that the check in the early summer was too much for them, and that all they were able to accomplish was a growth of about 2 ft., but no bloom. In those late cases the bulb has almost invariably come up sound, which is a consolation to a certain extent.

The novelties of the past season have in several instances proved decided acquisitions, and the following, from our greatest producer, M. Souchet, seem likely to hold a leading position for some years to come. I give them as I meet them in my note-book, not necessarily in the order of merit :—

Thomas Methven ***.—Purple shade of crimson, shaded with rose ; good spike, and good substance ; better than *Homère*, also a new flower, and rather similar.

Monsieur Legouvé ****.—Brilliant ponceau, white throat, faint lilac blotch ; large solid flower ; very like an old favourite of mine, Maréchal Vaillant, but finer in all respects, and, what is of great importance, fully a month earlier.

Madame Desportes.—White, lightly feathered with rosy lilac, blotch of same shade ; large flower, and splendid spike.

Argus ****.—Rich ponceau, feathered with a darker shade of the same, pale straw throat ; fine spike.

Schiller.—Splendid pale straw, rich bright velvety crimson throat ; very fine spike, quite distinct, and a great gem. This note was taken on August 25, and as a matter for amusing comparison, I next give a description taken on September 27 of another spike of the same variety in a neighbouring bed :—Blush, pale straw throat, with rich blotch of bright velvety crimson, heavy rose feathers, grand spike. The lapse of a month made all the difference ; but the two spikes were so unlike that, could it have been possible to bring them together, they might have been shown side by side as two separate varieties.

Racine ****.—Bright rosy crimson, shaded with white ; splendid spike.

Buffon ***.—Bright crimson and rose shaded, striped with white and crimson flakes.

Madame Dombrain.—Splendid soft rose, bright rosy crimson throat and feathers, good spike and good shape ; one of the very best.

Virgile ***.—Rich glowing ponceau, crimson blotch, good spike.

Marie Stuart ***.—Whitish blush, rosy crimson throat and feathers, grand spike. A second spike from the same bulb, soft white, faintly tinged with lovely pale pink on throat and feathers ; both different, but grand in either state.

Of seedlings, a few fine things have been shown in Dublin ; one splendid flower, shown by Captain Nicholson, of Glenmore, near Drogheda, one of our most successful exhibitors for the past two years, was named *Glenmore*, after his own place. It was a most brilliant flower, good at all points, and reminding one

very much of two of the best varieties John Standish has ever produced—Ensign and Carminata. I also fortunately had two of my best seedlings for the year in bloom at show-time; both are distinct, and quite up to the right standard. *Oliver Goldsmith*, warm blush, shaded rosy crimson feathers, throat tinged with bronze; very large flower, splendid shape, fine spike. Had this flower been sent out by M. Souchet, I would have said at once that it had come from the same strain of seed as Madame Dombrain and Thomas Moore. The second I have called *Earl Spencer*, after our present most popular Viceroy: rich orange scarlet, shaded; throat white, with crimson blotch, feathered with very dark claret-brown,—a seedling, I think, from Meyerbeer. Those two have been proved for two years, and may, I think, be fairly relied on. If my judgment was as crude to-day as it was some eight or ten years ago, I should probably be calling public attention to some 40 or 50, in place of two new varieties of my own; but I am not unmindful of the advice of a veteran and kindly critic to young authors:—"Burn more, and print less."

In the taking up and saving of *Gladiolus* bulbs, the lateness of the season causes great difficulty, as it is scarcely possible to get them out of the ground in detail where there is a large stock. I adopted the plan last season of taking all mine up in one day, as I do my Tulips. I placed them at once in their boxes in one of two new conservatories which I had just built, kept up a smart heat for about 12 days, and then removed them, well saved and in good order, to the fruit and bulb room for the winter. They are now in fine condition, that is, all that came out of the ground healthy,—for the number of shriveled-up, leathery, dead bulbs was quite as large as usual, and the cause of this mortality remains still unexplained. While speaking of taking up, it may be well to state that where a spike is cut while in full bloom, there the chance of the loss of the bulb seems to be greatly increased. This is, I suppose, only natural, as the sudden shock of beheading must be severely felt, but it is an important consideration for exhibitors. This is a matter I have carefully noted, and I should like to know what growers generally think about it.—J. F. LOMBARD, *Dublin*.

BLUE HYDRANGEAS.

BLUE *Hydrangeas* have lately engaged some attention in the FLORIST; and as I have for many years been in the habit of producing them of that beautiful colour, a hint on the subject may be acceptable to "Quo" and others, who, if they should live within a moderate distance of St. Alban's, Herts., will find no difficulty whatever in the matter, as at Colney Heath (a few miles from St. Alban's), there is, or used to be, abundance of loam and bog earth, either of which, used separately, would grow *Hydrangeas* wth most beautiful blue flowers, without any more trouble than the usual potting. I once lived in that neighbourhood for about thirty years, so that I had ample time to prove the qualities of the soil; but, having left, and gone something like 100 miles another way, I could no longer grow them with any other than pink flowers.

The most beautiful specimen I ever saw was a plant of *Hydrangea japonica* about 4 ft. high, which I grew and exhibited at the Royal Botanic Garden, in London. It occurred to me that, if I could obtain a small quantity of the soil, I might still carry on the production of these blue plants, and I requested a friend to send me some. He accordingly started me off about a bushel, in a bag, having placed a plant with blue flowers on it, in the bag, and filled the soil in among the branches. This was a novel way of packing a plant in flower, but it arrived safely, only a little dirty. I was very much pleased with my parcel, and, having some pink-flowered plants, I set about turning them blue, in the following manner:—I took them out of their pots (they were in full growth), and got away all the soil I could, without very much disturbing the roots. I then potted them in the new soil, and well puddled it in, so as to prevent them from flagging. They were kept close and warm for some time, till they recovered from the effects of this treatment, and were then left to finish their growth and go to rest in the usual way. The next year they were started, I think, some time in February, and in the course of the summer they were the most admired objects of a wedding decoration. I kept some of the soil for future use, but got disappointed, as the next year it had lost its power so far that the colour was very pale indeed, and the third year I do not think we could distinguish them at all, except that the flowers were exceedingly fine as to size, and the plants in vigorous health. This failure I attributed to the soil having been so long dug up, that it had lost the properties which had formerly effected the change. If I am wrong in this supposition, perhaps some reader will kindly set me right.

What I have stated about Colney Heath is, of course, no secret thereabouts. The most successful cultivator I am acquainted with, is Mr. Thrower, gardener at High Canons, near Barnet. He used to grow *Hydrangeas* with blue flowers in abundance, and, I have no doubt, would be exceedingly happy to answer any enquiries about their culture.—JASPER STANDSTILL.

THE LILY OF THE VALLEY.

 HIS truly British plant, though one of the humblest members of our sylvan flora, holds notwithstanding a proud position in the category of odoriferous flowers, from the grateful perfume exhaled by its tiny blossoms. Some sweet-scented flowers that I might name, are so heavily charged with perfume, that their odour is cloying and oppressive; but it is not so with the Lily of the Valley, for its fragrance is admitted by the best judges to be superior in delicacy to that of any other flower which we possess, whether native or exotic. Let it therefore stand to the honour of Britain, that among all sweet-smelling flowers which she has imported, nothing has yet turned up more grateful than this lovely gem, which we may proudly call our own.

On making acquaintance with this plant, we find it has, deeply nestled in the bosom of its broad green leaves, naked spikes of pure white blossoms like silver

bells, each bell beautifully vandyked with six points. I have generally found it growing wild not far from running water, as an undergrowth, with the arms and foliage of some venerable oak as a parasol over its head, literally a *Lily in the Valley*, with rocks and hills piled around ; and if the heart of oak had a tongue, or if these big stones and crags could speak, they would tell us that this plant was never intended by nature to do battle with the sun and wind single-handed.

The great service which the Lily of the Valley renders to horticulture is as a forced flower. Everybody knows the flower, for we see it in the button-hole of the gentleman's dress-coat, and in the bouquet of the bride adorned for her husband ; and it is so easily forwarded, being a spring flower, that it is to be had in January, and right on till it flowers naturally in May. I need not speak of its ordinary culture, if culture of any kind it ever gets, but I will ask the gentle reader to turn to Nature's page, and see how this plant behaves itself in its native habitat, and, for the reasons already given, to take that lesson. I have stated that the plant is a native of Britain, but I will go into particulars, and select a central locality, and ask the excursionist to take the Midland Railway train to Cromford Bridge, near Matlock Bath, in Derbyshire, and in that truly picturesque dell he will find the Lily of the Valley luxuriating. If he chances to be there in May, he may see children with bunches of its lovely blossoms offering them to the visitors and invalids for a few coppers. As he looks up to the rocks, piled mountains high around him, he will see that shelter, shade, and moisture are ingredients in the landscape where the Lily of the Valley is located by nature ; but the chief ingredients are the vegetable mould from the decayed leaves, and the moisture ; and when under artificial culture, if it is neglected and allowed to get once thoroughly dry during its growing season, that hard surface drying will be quite sufficient to ruin a season's blooming. As the plant skims the surface and does not feed deeply, it is essential to its well-being that very rich food should be put in its way, such as heavy drenchings with manure water, to imitate as far as possible the wet vegetable mould of its native vales. In the woods near Sheffield, north and south of that town, the common Squill may be seen in bloom by the acre ; and it throws all spring flower-gardening into the shade when one sees a flower-bed of lovely blue, a furlong or more in width, and half a mile long, lighted up by the descending rays of the evening sun. And when we pry into the mystery of its support, it all turns on the four or five inches of black vegetable mould that had once been leaves. But you cannot get such a glimpse as this of the Convallaria, although it is a plant exceedingly resembling the Squill* (*Scilla*), because it is seldom seen where the ground is even, and the length and breadth of its foliage combine to hide its slender spikes of flower.

* I would fain enter my protest against the unnatural position in which the Convallaria is classed in the *natural arrangement*. The head of the family, *Smilax*, has little in common with its congeners. I would not have it aspire to be one of the Lilies, although it is as white as they. I would rather group it with its lovely companions of the grove, the *Scilla* above alluded to, the fragrant *Hyacinth*, and the wild *Allium*. I should be contented to see my tiny pet among the rank and file of this family, a gentle, lovely *Asphodel*.

We have been in the habit of potting the crowns of this plant for forcing, much in the same way as we do the bulbs of the Hyacinth; but the roots of the Hyacinth, and the roots of most bulbs, strike deep into the soil—indeed there is a peculiar form of flower-pot, one-third more in depth than the diameter at the brim, that used to be called the Bulb-pot. This ought not to be used for the Lily of the Valley, but rather shallow pans whose depth is not more than half their diameter. Into such pans patches of the roots of the Lily of the Valley should be placed, with the soil attached, and without breaking or disturbing the feeders at the very time when their services are most needed. In this natural way the plants will flower freely, especially if they are not forced with too much fire-heat. It is therefore evident that it is to the previous treatment of the plants in the reserve garden that we must look for our success in forcing this gem of a flower; and the cultivator must have an eye to the natural method, and see that shelter, shade, moisture, and surface feeding are attended to, for it certainly needs them all. It is disgraceful to see the way in which this useful plant is treated in most gardens. I do not recollect noting any one instance in which it was honestly cultivated, for it was allowed to have its own way, behind a north wall, and the crowns were dug up for forcing as they were wanted; but if we could only grow them by art as well as they are grown by nature, they would handsomely repay us by their unrivalled fragrance; and as they are saleable goods, they might, if well marketed, render some service in the way of paying rent to the dealer in cut flowers.—ALEXANDER FORSYTH, *Islington Square, Salford.*

GRAFTING UNFRUITFUL UPON FRUITFUL TREES.

IN a former paper, relating to the stocks of Apples and Pears, I wrote against the opinion that grafting bad-bearing kinds on fruitful ones would increase their fertility. As what I then said may be disputed, I will enforce it by further observations. A few years ago I grafted some healthy scions of the Northern Spy Apple upon good-bearing branches of Braddick's Nonpareil. They grew freely, but were unproductive, and of the usual slender growth peculiar to that kind, though the original tree or stock is always very fruitful, even some of the shoots of the previous season's growth being so,—a peculiarity of some great-bearing kinds of both Apples and Pears. Amongst these is Susette de Bavay Pear, which seldom ripens in bad seasons even on a wall. The next example will show the reverse side of the question. I grafted Cox's Pomona Apple upon some sere branches of the Norfolk Beaufin, and they soon got the mastery, and proved very fruitful, without affecting or restoring to health the nearly barren tree.

Those who dispute my opinion on this subject, might as well maintain that the shoots of a good-bearing kind, united to those of an unfruitful one, would make a fruitful tree; but though that would be like reversing the process, it would be equally untenable. Numerous instances of such might be mentioned, but I con-

fine myself to two. I have on a wall with an east aspect a healthy tree of the White Doyenne Pear, on the top of which is the Susette de Bavay. This part of the tree is always prolific, but that below bears only sparingly. Again, I have Hacon's Incomparable or Bergamot on a wall with a south aspect, grafted on the common Crassane, without any change of its habits. This applies equally to all such grafting, and it is because each kind or variety obtains its proper nutriment from its own leaves, and not from the *crude* juices derived from the roots of the stocks. I may have noticed this before in these pages, but I repeat it, because Mr. Hill in his remarks on the Styrian Pear at p. 272 of the volume for 1869 states that "grafted on Citron des Carmes, it comes in fully a month earlier, and is beautifully coloured, but smaller than on a pear stock." But from what I have just advanced, I do not see how that can be.

However, I pass on to notice that these remarks do not apply to grafting rare, or new kinds, upon established trees, for this certainly promotes fruitfulness, and grafts so worked will bear much sooner than when worked on young luxuriant stocks. For instance, I have thus fruited for the last two seasons upon walls of south and west aspects the *British Queen Pear*, but found it inferior to the old kinds on which it was grafted. The slight flavour of this new Pear, whether it be grown on a wall, or as a standard, is lost too soon on the palate. On mentioning this to a friend, whose taste is better than my own, he compared some of his British Queen Pears from a standard with mine, and came to the conclusion that he would cut his young tree down, though it had cost him ten shillings. I state this in order to show that a too hasty judgment of new kinds of fruits may lead those astray who purchase the "whole stock" of such varieties, and who may thus unintentionally deceive their customers.—J. WIGHTON, *Cossey Park*.

PASSIFLORA MACROCARPA.

SINCE my last communication on this new Passion-flower, I have gained some further information respecting it, which leads me to state that I am now of opinion that it is worthy of being held in higher estimation than we were at first led to believe. It is not wise to pass too hasty a judgment on a new fruit, which this undoubtedly is, lest we do injustice to the collector, who in this case was M. Wallis, "who discovered it on the banks of the Rio Negro about 1864." Hence it was right that the fruit should have a fair trial. Subjoined is a description of the test to which I have subjected it, and the result of which enables me to say something in its favour.

I could get no satisfactory account of the fruit when sent in to the family for use in its raw state. I therefore had one made into a jelly, and this is the account of it sent me by the Countess of Craven:—"Many thanks for the jelly, which his Lordship thinks excellent, quite as good as guava." This is an improvement on the verdict passed on the fruit when used in its raw state, viz., "Not at all good, and quite unlike *P. edulis*." Men do not wish to be considered

of less value than they really are, but it often happens with individuals as with *P. macrocarpa*—they are condemned for want of knowing how to appreciate their worth, or where to find in them the kernel of real value or real flavour.

The method of making the conserve differs in some respects from the directions given at p. 14, which refer rather to the preparation of a jam than of a jelly. Here is the recipe by which the jelly above mentioned was made:—Cut the fruit in half; carefully remove the seeds with the juice; peel the fruit, and cut it up into slices, *i.e.*, that part of it corresponding to the flesh of a melon. Put it into a preserving-pan, with $\frac{1}{2}$ pint water to 2 lb. of fruit, and let it boil 10 minutes; then strain through a jelly-bag. When strained, put $\frac{1}{2}$ lb. of sugar to $\frac{1}{2}$ lb. of the juice, *i.e.*, of the flesh juice, and let this boil for 10 minutes more. Then add the seeds and the juice, and boil until it forms into a nice jelly. The seeds should not be removed, but left to add to the flavour, after the manner in which the kernels of Apricots, Peaches, Plums, or Damsons are used. I am glad you have drawn attention to *P. quadrangularis*. I will give that also a fair trial.—Wm. MILLER, *Combe Abbey Gardens*.

THE HOLLYHOCK.

SOME years ago, just when it might have been said that a new and vigorous life was being infused into the profession of the florist, an old writer, seeing in some of the flowers then being taken in hand, kinds that had hitherto received but little attention in comparison with what had been paid to others, was led to give utterance to these words:—"Some younger spirits, straining after new worlds of flowers to subjugate, or in which 'to mend Nature,' have obtruded Hollyhocks, Phloxes, Verbenas, Snapdragons, &c., to the much discomfort and surprise of the old school." Some, then, these aggressive "younger spirits," as in many other matters related to our every-day life, have made considerable headway in their especial tracks, despite many sorrowful protests similar in character to the one recorded. Had not these "younger spirits" pushed on with ardour their subjugating efforts, the world of Floriculture would have lost much of a very valuable character. One of these obtruded flowers, the Hollyhock, has run a glorious course, as some of the most gifted of the younger spirits gave to its improvement the high service of their newly-awakened and vigorous enthusiasm. In the list of names of those who have aided in this good work can be found those of Paul, Chater, Bircham, Roake, Parsons, and others of lesser note; and later but not less successful, those of Downie, and Laing, and Hawke. It is to these last names, and that of Mr. Chater, that the improvement of the Hollyhock in the present day has been committed, and it must be said, it is being worthily performed.

That Mr. W. Chater has a fine lot of new flowers will be readily inferred from the fact that the Royal Horticultural Society awarded him five First-Class Certificates during 1869. These five varieties were *Carus Chater*, rich dark

shining crimson, flowers large and very full; *Constance*, pale flesh, flowers large and full, and of a very pleasing hue; *Junia*, pale primrose, deeper towards the base of the flower, regularly suffused and stained with purple, novel and distinct in colour; *Leah*, apricot yellow, but with a pleasant yellow glow, flowers large, full, and of fine form; and *Walden Queen*, deep salmon-pink, flowers large and full, and a fine exhibition variety. In addition, Mr. Chater has *Autumn Queen*, rich carmine, large, and full; *Peri*, creamy-white, a fine and well-formed flower; *Purity*, soft bright pink, very pretty and good; and *Rosa Mundi*, bright carmine, of a showy hue of colour.

A personal inspection of Messrs. Downie Laird and Laing's new flowers enables me to speak of them with some confidence. Taking the flowers according to their alphabetical arrangement, they are found to be: *Alexander Henderson*, light ruby-crimson, of fine form and full substance; *Andrew Jamieson*, deep rose, shaded with dark, forms a fine spike for exhibition; *Captain Grant*, light rosy-crimson, flowers large, full, and extra fine; *Cloth of Gold*, pure bright yellow, of fine form and quality, and very promising as a fine show kind; *David Marshall*, clear deep rose, of fine form and substance; *James McIndoe*, bright rosy crimson, forming a grand spike of large and full flowers; *John McDonald*, very dark ruby crimson, fine spike; *Mrs. T. H. Douglas*, pale soft rose, flowers of the finest form and quality; *Mr. Downie Improved*, bright orange, slightly shaded with rose, a fine variety, whether used as a spike or required for cut blooms; *Novelty*, mauve at base of the flower, and greyish-white, quite distinct in character and novel in appearance; and *Richard Dean*, a splendid exhibition flower, of a dark glossy crimson hue, of fine form and quality, and forming a grand spike. This fine variety was awarded a First-Class Certificate at the Royal Caledonian Society's Exhibition at Edinburgh in September last.—*Quo.*

GARDEN GOSSIP.

AT the Anniversary Meeting of the *Royal Horticultural Society*, on the 8th ult., the Council announced in its annual Report that it had come to the conclusion that Chiswick Garden must be abandoned, owing to the large expenditure it involved, and its growing unfitness for the purposes to which it was devoted; and the question of purchasing a smaller garden in some more favourable locality was submitted to the judgment of the Fellows, the means of acquiring this new establishment being, it was believed, provided by a bequest of £2,000 to the Society from a late Fellow, Mr. A. Davis. It was also stated that whilst the country shows at Bury and Leicester had proved to some extent remunerative, that held last summer at Manchester would not more than meet its expenses. The Council, moreover, claims to have taken the necessary steps to secure the advantage of international competition for Horticulture at the approaching annual Exhibition of Art and Industry.

— WE are glad to find that *Rendle's Plant Protectors*, to which we alluded in our last volume, are engaging the attention of some of our foremost gardeners. Mr. Ingram, of Belvoir, we learn, purchased all the specimens exhibited at Manchester, with the view of giving them a fair trial, and those who have seen them in use at Belvoir speak very highly of their efficiency. Mr. Rendle informs us that he is about to make

some small hand-glasses to cover Dahlias, Verbenas, Bedding Plants, &c., so as to protect them from frost after they are planted out. These will be very useful, not only to florists, but to flower gardeners, and are, we are told, to bear a very low price,—3d. each, including glass.

— WE are indebted to Mr. Turner, of Slough, for the following list of choice varieties of *Pinks* such as may be recommended to growers at the present day:—Attraction, Beauty of Bath, Bertram, Blondin, Charles Waterton, Christabel, Delicata, Device, Edwin, Emily, Excelsior, Invincible, Lady Craven, Lord Herbert, Marion, Nina, President, and Rev. George Jeans.

— IN reference to the *Bedding Pansies* noted at p. 41, we learn from Mr. Fleming that the names of Trentham Blue, Trentham Yellow, &c., used by A. I. P., are misnomers. The whole of these Pansies were raised at Cliveden, and were sent thence to Trentham; hence Mr. Fleming is quite justified in claiming for them the names of Cliveden Yellow, Cliveden Blue, &c. We have now succeeded, Mr. Fleming adds, in getting a splendid red, which will be good news for spring gardeners. Every establishment is entitled to claim the credit which fairly belongs to it.

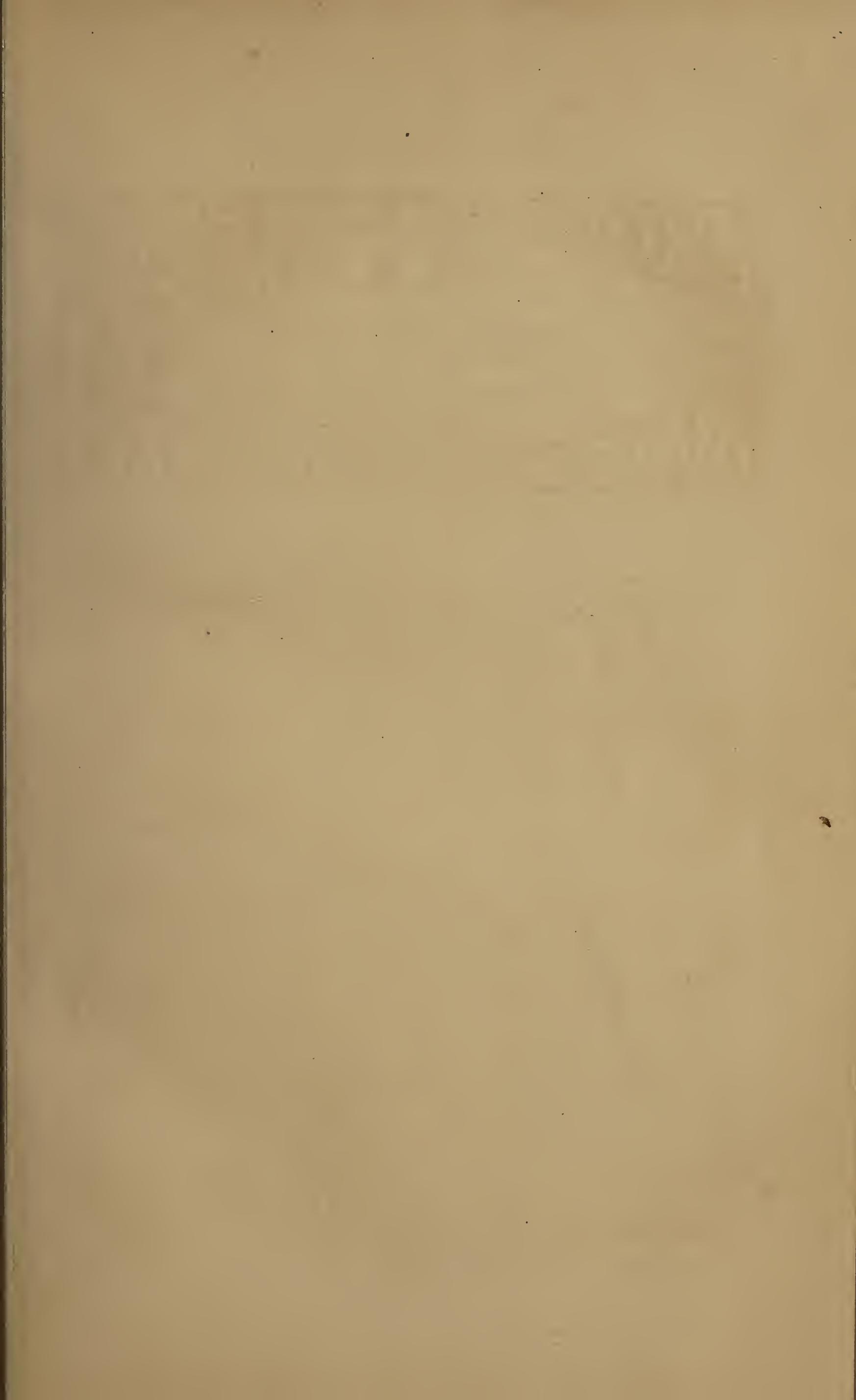
— THE *Sandringham Sprouting Cabbage* is likely to be a useful addition to hardy vegetables. It is the result of a cross between McEwen's Cabbage and the Brussels Sprout, the latter being the seed-bearing parent. It forms a head like a small Cabbage, and has the stem clothed with moderate-sized sprouts, which close after the manner of the branches of the Brussels Sprouts, except that they are larger. They are exceedingly sweet and tender when cooked, with quite the flavour of a mild Cabbage.

— AMONG Winter-flowering plants, the sweet-scented *Bouvardias*—*jasminiflora* and *longiflora*—though very useful, are much neglected by gardeners in general, in consequence of the want of proper accommodation for them. They require a warm, light, airy house, and to be set close to the glass during the autumn, winter, and spring months, and during the summer to be planted out in the open garden, in good soil, repotting again in September. They may be increased by cuttings, or by seeds, as they seed very freely. The plants should be set in a warm moist house six weeks before taking the cuttings in the spring; then they strike very freely. Pot in good rich fibry peat and loam, adding coarse sand, and syringe daily with clear soot or sulphur-water if red spider appears. *B. jasminiflora* is the freest of the two, but *B. longiflora* has the largest flowers, and is the sweetest-scented. When the pots are full of roots, water with liquid manure frequently. Most of the *Bouvardias* like the same treatment.

Obituary.

— MR. SAMUEL BROOME, the well-known Gardener of the Inner Temple, died of apoplexy on January 22nd, at the age of 64. He was born at Weston-under-Lizard, and after serving his apprenticeship in the gardens of the Earl of Bradford, he came to London, and was for 38 years employed in the Gardens of the Honourable Society of the Inner Temple, where for the last 27 years he filled the responsible post of Head Gardener. He specially devoted himself to the cultivation of the Chrysanthemum, his knowledge of which rendered him a general referee to those desirous of obtaining information concerning it. "Sam Broome," as his friends called him, was greatly respected and very deeply regretted by all who knew him.

— MR. JOHN LLOYD died on January 24th, in his 79th year. His name and character were best known among the growers of Succulent plants and Fern collectors. He had a wonderful success in cultivating both these tribes of interesting plants; and with regard to succulents, he was gifted with a most extraordinary ability in distinguishing species,—a quick and penetrating eye to catch at once the points of difference between one species and another; this was more especially observable in his knowledge of Aloes, Agaves, &c., and caused him to be known as the Richard Bradley of our times. Leaving his native home in Herefordshire in early life, he came to London, and nearly the whole of his life was passed in the vicinity of the metropolis.





J.H.

NEW VARIETIES OF FUCHSIA.

WITH AN ILLUSTRATION.

FT is quite evident that the well-directed efforts of E. Banks, Esq., in the raising of new varieties of Fuchsia have been crowned with the most complete success, and that he is now far ahead of all rivals in this particular field.

The opposite plate furnishes the proof of this assertion. The improvements which Mr. Banks has been carrying on step by step for nearly 30 years have culminated, so far as the public are permitted to share with him, in Splendour, one of the varieties which we now figure. We use the foregoing qualification, because it is, as we learn, an axiom with this grower never to part with any new variety until he has obtained a better one of the same type. The dark-coloured varieties in the accompanying plate represent novelties from Mr. Banks' collection, now in the hands of Mr. Cannell for distribution, while the double white is a portrait of one of Mr. G. Smith's new varieties.

Our fig. 1 represents the variety named JOHN McELROY, which is considered to be a grand improvement on such sorts as Lord Derby and Lord Elcho. The sepals are broad, thick, and well reflexed, and the very long barrel-shaped corolla is of large size, and of an intense violet, occasionally striped. Fig. 2 represents SPLENDOUR, alluded to above, and which has the largest, intense dark purple corolla of any variety yet sent out. In some blossoms which we measured in the autumn of last year the diameter of the expanded corolla was fully 3 in. It has a bright scarlet tube, with sepals of the same colour, reflexing to form a perfect crown, and of great substance, while the plant is a strong bushy grower, and a free bloomer. JOHN BRIGHT, represented at fig. 3, is an improvement on Beauty of Sholden; the reflex of the fine, stout scarlet sepals is perfect, while the mauve-tinted, cup-shaped corolla is the most regular and perfect of any variety of that colour. In fig. 4, named AVALANCHE, we have certainly one of the finest double whites which have yet been produced. It comes from Mr. G. Smith's collection, and, as shown by him, was of excellent free-blooming habit, with very large and very full blossoms, the sepals being of a somewhat rosy tint of scarlet, and the corolla large, dense, regularly formed, and of the purest white. No finer Fuchsias than these, in their respective sections, need be desired.—M.

PHLOXES IN POTS.

HOWEVER warmly I sanction and admire the plan of exhibiting these handsome, hardy, herbaceous plants in pots, I find it is not so well to grow them in that way. The plants make too much root to be grown in

8-in. pots, and become too soon pot-bound; such plants in many instances look sickly, while the flowers are consequently small, and their colours are not fully developed. Last season I potted a lot of plants early in spring, for the Royal Horticultural Society's Exhibition at Manchester, but as the time

approached I found they would not do, and therefore I determined to take up plants in bloom the night previous. Having saturated them with water a couple of hours before, I cut round the plants with the spade, so as to form a ball of earth as nearly the shape and size of an 8-in. pot as possible. They were then raised and lifted carefully with both hands, and placed gently in the pot. When completed hooped, and all ready, I plunged the pots for a few minutes each in water, and found next morning that they looked quite fresh, and ready for their journey, and I thus succeeded in gaining the first prize. The varieties were Princess of Wales, Iphetus, La Ristori, Miss Spedding, Atlas, and George Wyness. Iphetus and Atlas I consider too similar for a pan of six, but I selected them on account of the fine bloom. I plunged the pots in water three times while they were at the show, yet notwithstanding they began to flag at the week's end ; but they were very much admired by all who took an interest in this Queen of Herbaceous plants.

An old friend told me that if I had puddled the bottoms of the pots with clay they would have been better. I merely mention this as a hint to anyone intending to exhibit them in pots during the coming season, and intend to try it myself, being fully satisfied of the superiority of exhibiting them in pots rather than as cut specimens.

Another system which I have adopted, and which is generally admired, is to confine the stems to two hoops, the lower 5 in. or 6 in. in diameter, and the upper one 9 in. to 12 in., according to the size and number of stems. These are supported by means of two upright stakes, and the stems are carefully tied at regular intervals. This system not only prevents the wind from damaging the spikes or trusses, but gives the whole a neat and more uniform appearance. The hoops may be made of any light material, as cane, willow, hazel, or anything in that way, and will last two or three seasons.—JOHN WALKER, *Winton, Manchester.*

CLERODENDRON FRAGRANS.

AS any reader of the FLORIST had any experience as to the hardiness of *Clerodendron fragrans*? My earliest recollections of this plant go back to the time when it was grown as a greenhouse plant, but for many years I had not seen it until, in the year 1865, I found it growing in a shrubbery bed at this place, with two shoots, one of which produced a small, but most fragrant truss of pink flowers. Although it has never received any special treatment, it has increased in strength, and now annually produces several vigorous shoots, which produce large handsome trusses of bloom in September and October. The frost generally destroys the blossoms and foliage, but the wood ripens sufficient to withstand it.

I learn from Mr. P. Don, of Bedgebury Park, who saw the plant when it flowered, that he had never before heard of or seen it growing in the open air,

especially as an established, hardy plant; and this being my experience, I have thought the subject worthy of notice in the pages of the FLORIST and POMOLOGIST.
—THOMAS RECORD, *Lillesden*.

THE GARDEN MENTOR.

APRIIL—generally a season of showers and sunshine—is always a very busy month, and particularly so, when the weather of the previous one has been unfavourable, as then many things that ought to have been done during March will demand immediate attention.

KITCHEN GARDEN.—The surface-soil should be kept stirred by frequent hoggings between the rows of all growing crops, which will be most beneficial to the young plants, and will keep down weeds. Attention must be paid to the timely and proper thinning of the young crops, otherwise they will soon suffer serious injury; when this is done, if the ground is in good condition and the surface kept stirred, the plants will soon acquire such a size and root-hold as will enable them to withstand considerable heat and drought without suffering much therefrom. When this timely attention is not given, the young plants suffer from even a little drought, particularly if the soil be poor. The planting of *Potatos* should be brought to a close. *Cabbages*, *Cauliflowers*, and *Lettuces* may be planted out. The hand-lights may be removed off the *Cauliflowers*, and some soil drawn up to the plants. *Peas* should be earthed up, and rodded as they require it. It is advisable to cover seeds, especially those of the *Brassica* tribe, immediately after they are sown, with nets to protect them from birds, which in most gardens are very troublesome. Slugs are oftentimes very destructive to young crops if not well looked for; as soon as any are perceived, the whole surface of the ground should be dusted with lime, either late in the evening or very early in the morning; if this is persevered in for a short time, it will soon stay their ravages. *Celery* sown last month should be pricked out about 4 in. apart in nice rich soil, and be protected by a frame.

Sow: Peas and Beans twice during the month; the main crop of Carrots and Parsnips; Salsafy and Scorzonera; Borecole and Broccoli of sorts at the beginning of the month; Round Spinach and Turnips for succession; Cabbages for Autumn; Cauliflowers and Lettuce for succession. Radishes, Mustard and Cress twice during the month; Beet at the beginning of the month for early crop, at the end of the month for main crop; Kidney Beans and Scarlet Runners towards the end of the month.

FORCING HOUSES.—Pines: Plants swelling their fruit must now have every attention; water freely and occasionally with liquid manure, syringe overhead occasionally on a fine day after the houses are shut up, and maintain a moist atmosphere. Give a little air at every favourable opportunity, and keep a temperature, at night about 70°, and during the day about 80° or 85°, with an increase of 10° or more by sun-heat. The succession plants should be shifted at once, if not done last month, should have a steady bottom-heat of about 85°, and a top-heat of about 70° at night, rising to 85° or 90° on bright days; they should not have much water until they begin to root freely into the fresh soil, and should

also be kept rather close for a week or two, when air should be admitted freely; under this treatment they will grow freely. Carefully guard against too much bottom-heat, and over-watering after they are fresh potted. *Vines*: As soon as the grapes in the early house begin to colour, a drier atmosphere must be maintained, and air should be admitted freely. For succession houses, attend to former directions; when the buds begin naturally to swell in the late houses, give a little fire-heat. In my opinion it is a mistake to retard late Vines, as is oftentimes done, with the idea that the grapes will keep longer. Grapes ripened towards the end of September will almost invariably be finer, and will generally keep better, than grapes ripened towards the end of October, and the wood will get properly matured. *Peaches*: Give air freely in the forenoon, and close up early in the afternoon, syringe daily, and keep a moist, growing atmosphere; water well the inside borders, and attend to the tying-down of the shoots. *Figs*: Keep these well watered, and persevere in syringing daily, otherwise the red-spider may become troublesome; stop all shoots when about 6 in. long. *Cherries*: Attend to the stopping of the shoots, and see that the plants are free from insects; lessen the supply of water as the fruit approaches maturity. *Strawberries*: Give plants swelling off their fruit plenty of water, and occasionally a little liquid manure; let them have abundance of air, light, and heat. Plants in flower should have plenty of air, but should not have too much heat. *Cucumbers and Melons*: Give the former plenty of heat, light, air, and moisture, and do not allow the shoots to get crowded. A steady bottom-heat must be always maintained to Melons; keep rather dry when in bloom, but when a sufficient number of fruit for a crop are set, give liberal supplies of tepid water; sow for late crops.

HARDY FRUIT GARDEN.—Attend well to the protection of *Apricots*, *Peaches*, and *Nectarines*; they are a month later in coming into bloom than they were last season, owing to the dull cold weather we have had since the beginning of the year; see that the covers are all on at night, and removed during the day, unless severe weather should render it advisable to let them remain up. Commence the gradual disbudding of the shoots when fit. Take every care to preserve the young shoots from injury either by insects or frost, as when these are destroyed, the later growths rarely ripen properly. Cut down the shoots of double-bearing *Raspberries* to within a few inches of the ground, and run a hoe between the *Strawberry* plants, to loosen the surface of the soil.

FLOWER GARDEN.—*Plant Houses*: Fire-heat may be altogether dispensed with, excepting in stoves. Air should be admitted whenever the state of the weather permits. *Soft-wooded plants* will be growing away freely, and will require to be watered liberally; attend to the training and tying-out of the shoots as they advance in growth; shift all plants when they require it, being careful not to overpot; avoid crowding the plants, if good specimens are wanted. *Cinerarias* will be coming into full bloom; fumigate the plants two or three times whilst in bud, and then they will keep clean while in flower. Tie up the shoots of *Calceo-*

larias as they advance in growth. Many kinds of *Hard-wooded plants* will be in great beauty, and should be well attended to. Shift all young growing plants that require it. See our remarks of last month.

Pits and Frames.—These should now be made the most of. One or two should be hot-beds for the propagation of plants of all kinds for autumn, as well as for summer decoration. One or two should also be hot-beds for the growth of *Globe Amaranths*, *Humeas*, *Egg plants*, *Cockscombs*, *Balsams*, &c. The cold pits and frames should be used for gradually hardening off *Bedding plants* of all kinds; give air freely, but do not yet take the lights wholly off.

Sow: *Balsams*, *Cockscombs*, *Cinerarias*, *Primulas*, *Cyclamens*, *Humeas*, *Zinnias*, *Asters*, *Carnations*, *Stocks*, *Globe Amaranths*, *Egg plants*, &c. They should be sown in shallow pans, and placed in a gentle bottom-heat, and as soon as fit should be either potted off singly into small pots, or pricked out into pans, and grown on in heat.

Out-Doors.—Loosen carefully the surface-soil between *Bulbs*, and protect with temporary covers in bad weather. Finish pruning *Roses*, if not already done, and do not suffer any suckers to rob the plants. If the weather be dry, water newly-planted ones, and see that standards are properly secured to stakes. Dress box edgings. Sweep and roll walks and lawns, and mow before the grass begins to grow much.

Sow: *Mignonette*, *Sweet Peas*, *Wallflowers*, *Sweet Williams*, *Nemophila*, *Clarkia*, *Gilia*, and other hardy annuals; also Biennials and Perennials of all kinds.

—M. SAUL, Stourton.

AQUATICS.—CHAPTER II.

THE sudden splash and flutter of that retreating dab-chick or waten-hen, whose erect white tail has just disappeared with sundry convulsive twitches among the sedges, and the grateful aromatic odour arising from the newly-bruised water-mint beneath our feet, irresistibly remind us that we are again on swampy ground.

And here we meet with an old acquaintance, the Water Archer or Common Arrowhead, *Sagittaria sagittifolia*, the leaves of which, as its name imports, bear a striking resemblance to the head of an arrow or halberd. The simple rehearsal of the name sends us some centuries back, and brings vividly to our imagination the brave doings at Agincourt or Cressy, and also serves to remind us in passing of the valiant deeds of our Cheshire archers in days of yore.

This species is well adapted for a pond or lake of moderate size, having from two to five feet depth of water. It is curious to observe how the plant will adapt itself to circumstances in this respect, for if planted five feet deep it will send up its leaves and flowers from a foot to eighteen inches above the water, and if in but two feet of water it will do the same. Being a perennial, and having a creeping root-stock, forming numerous elongated tubers in the growing season, it soon forms a nice mass, and is useful, as being of a very upright growth and

rigid outline, for contrast with the floating kinds. The flowers are white, and produced in whorls on a stem longer than the leaves, and are tripetalous, in form and size not unlike those of *Tradescantia virginica alba*, and having the males and females on the same spike, the former being produced on the upper part on longer, the latter below on shorter pedicels. The carpels are produced in spherical clusters, and bear a marked resemblance to those of the common Burdock. Being a native plant, it is perfectly hardy.

Sagittaria sagittifolia flore-pleno.—In the form of its leaves and its general aspect this resembles the last, but the flowers, which are white, are perfectly double, so that when in full bloom it bears no inapt resemblance to a double white hyacinth. This variety is said to be of garden origin, but no one seems to know precisely when, where, or how it was produced. That it is not only the handsomest of the Arrowheads, but also one of the very best hardy Aquatics we have, no one will venture to deny. Being of moderate growth, it is very suitable for small ponds or tanks, and should never be omitted from the most select collection. The above are the only British representatives of this group; *S. latifolia* and *S. latifolia flore-pleno* are merely synonyms.

Canada produces a major variety of the *S. sagittifolia*, and Pennsylvania a minor variety of the same, but unfortunately neither of these is at present procurable in this country.

Sagittaria rigida.—This is a North American species, and is occasionally met with in cultivation. The leaves are not sagittate, but somewhat lanceolate. The flowers are produced on branching spikes, and are pure white, and very showy. Its native habitat is in the deep, still waters of the Oswego river, where it luxuriates to such a degree that it sends its strong petioles up through seven feet depth of water; but it will flourish in a less depth, and is useful for large ponds or lakes, where strong-growing sorts are desirable. It is perfectly hardy.

Sagittaria obtusa.—A fine species from Virginia, where it grows in shallow water. The leaves are about the size of those of *Calla palustris*, and bluntly sagittate, the scape not branched, the flowers white and diœcious. It is useful for ponds of medium size, and quite hardy.

Sagittaria chinensis.—This is a very distinct and fine species, having broadly arrow-shaped leaves, on long footstalks varying from two to three feet, very upright in habit, and standing well up out of the water; it produces on a branching spike a profusion of rather small, whitish flowers, and is a very useful sort for a medium-sized tank in a greenhouse or conservatory, as, being a native of China, it will not bear our winters when exposed.

The *Sagittaria angustifolia*, from Essequibo, is a white-flowered stove species; but as this, and the ten or twelve species known to exist in North America and Canada, are not at present in cultivation in this country, it would be useless to enumerate them.—W. BUCKLEY, Tooting.

THE MORELLO CHERRY.

NOT only in its fruit, but also in its wood and in its habit of growth, this Cherry differs from all others, so that in its cultivation, especially in respect to pruning, a totally different course must be pursued from that which is adopted with other species. In the Common Cherry the flower-buds are mostly produced on short spurs, on wood of two years' age or upwards, and at the base of the young shoots, and are what might be termed persistent, as in the pear, &c. In the Morello Cherry, on the other hand, the flower-buds are all produced on the young shoots of one year's growth, as in the Peach. In pruning, therefore, care must be taken to secure an abundant supply of this young wood, in order to obtain fruit.

Whilst the trees are young and making strong, robust shoots, wood-buds are tolerably plentiful, so that they may be cut where required. As they grow older, however, the wood becomes more feeble, and wood-buds more scarce, being generally only found as the terminal buds, all the other buds on the shoots being flower-buds. If this young wood is shortened, the terminal and only wood-bud being thus cut off, the shoot as a consequence dies; for, unlike many other trees, this Cherry seems to have no latent buds wherewith to produce new shoots. This is so well known to all gardeners, that Morello Cherry trees are seldom or never pruned. With trees on walls the little pieces of young wood are annually nailed in, and a few dead pieces cut out; and in course of time the whole becomes a crowded mass of shoots and nails, with nearly all the bearing wood at the very extremity of the trees. Such an extreme crowding of shoots is not practised with any other fruit-tree, neither can it be justified in the case of the Morello Cherry. I have satisfactorily proved that if the shoots are kept moderately thin, allowing space, for the free development of the leaves, a far greater and finer return will be obtained than under the crowded system; and as the shoots grow more freely and more vigorously, wood-buds are more frequently produced, and the yearly supply of shoots may be more evenly regulated.

Morello Cherries are mostly to be found planted against north walls, where they succeed exceedingly well, or at least, better than, perhaps, any other fruit-tree. In many gardens round London, and in the market gardens, they are also grown as open standards, and succeed tolerably well, only that the trees soon become unsightly, one-sided, misshapen sticks, through the difficulty experienced in regard to pruning.

The prettiest method of cultivation, however, a method slowly, yet surely, growing into favour, and which I hope to make still better known, is that being adopted in some of our first-class market gardens, to wit, Mr. Francis Dancer's, at Chiswick. The trees are worked on the Mahaleb stock, which is far better suited for it than the wild cherry, and are planted out in the open quarter 6 ft. apart, plant from plant, and pruned and trained like so many gooseberry bushes.

For this style of cultivation the Morello Cherry is, by its peculiar style of growth, particularly well adapted, and the return per acre from a plantation of this sort is very great indeed. The ground being tolerably rich, the shoots are strong, with plenty of wood-buds; a portion of these are spurred in to three or four eyes, and the others are partially cut down; by this means a regular supply of bearing shoots is produced, without greatly increasing the size of the plant. When we see a plan adopted by practical men, like Mr. Dancer, as a profitable speculation, it requires little more to recommend it. Trees prepared for this method of culture may be procured in almost all our leading fruit-tree nurseries.

The Morello Cherry may also be grown as a pyramid, and in gentlemen's private gardens, where fruit-trees should be made as ornamental as possible, and in small gardens where time can be devoted to the operation, a judicious system of pinching the young shoots should be pursued.

In particular, I would recommend that one-half the shoots ordinarily to be met with in Morello Cherry trees should be cut out, and measures taken to infuse greater vigour into the plants, for in this way finer fruit may be produced. Ordinary fruit may be purchased at 2d. per lb., but the finest fruit will fetch a much higher price. I have sold them as high as 1s. 6d. per lb., and they were worth the money.—A. F. BARRON, Chiswick.

THE ART OF FORCING FRUIT AND FLOWERS.—II.

FOLLOWING up my former remarks, I have a few words to offer on the general principles of Forcing. These, in regard to the subjects operated upon, may be set forth under the two following heads, viz.:—1. Exotic fruits, or flowers, especially such sorts as are indigenous to hotter climates—Pines, for instance, which when grown here with us by artificial means require forcing in the early spring and autumn months, to bring their produce to a proper maturity, at what may, nevertheless, be to them in their native habitat their *natural* season. 2. Native fruits, flowers, &c., or such as are habitats of countries possessing a natural warmth not exceeding, in some instances even less than, that of our own, and which are forced at, to them, *unnatural* seasons. There may be individual cases under these distinct divisions which may require special treatment in order to bring the process of forcing to a successful issue, and such cases require a certain amount of personal practice and observation in order to their being successfully dealt with; but in regard to general principles, the treatment of each is sufficiently alike for my purpose.

Exotics requiring forced treatment in spring or autumn, require every ray of light possible. Light, in fact, should be held of the first importance in relation thereto, and all other requisite agencies should be used in aid thereof. According to the amount of light, so relatively must heat—artificial heat, of course—and moisture, little or much, be allowed. In regard to heat and moisture, the season must be taken into account by the thoughtful practitioner. In the spring months,

when a strong young growth is the main desideratum, the sun having moderate power for warmth, moisture in the form of vapour—atmospheric humidity, in fact—must be fairly supplied in proportion to the natural and artificial warmth. Between the middle of February and the end of March, the structure may be closed, as regards air-giving, as soon as the sun has passed the meridian, and thus a considerable amount of natural warmth may be stored, with all its invigorating influences, and the necessary temperature may be thus maintained away into the night. The humidity already suggested becomes thoroughly incorporated with this warmth, and with what fresh air was admitted in the early part of the day, and thus the most natural and favourable condition of the atmosphere is so far ensured. This growing temperature is gradually carried away into the night-time, under the cooling influences of which it expends itself, and holding the humidity in its grasp while the temperature descends to a minimum, deposits it by a process of condensation in myriads of particles on leaf and branch, bathing all their surfaces in almost imperceptible moisture, aiding plant and leaf alike in their effort to collect fresh energy for the following day. Thus the most natural growing conditions are assured under a strictly artificial *régime*.

But having got thus far, I should not be dealing honestly with the subject, did I omit to draw attention to another consideration which a superficial observer might fail to discern, but which in actual practice exerts a very material influence in connection with all successful forcing. I allude to a properly balanced temperature throughout the whole twenty-four hours. Thus, for instance, the mean heat attained to during the afternoon, when the structure is deprived of air, should to some extent be regulated by the range of temperature which existed in the early morning, this being, to a great extent, a key to what it fell to during the preceding night. However bright the day may be, or however high the sun unaided may be capable of raising the temperature, at this youthful period of the plant's growth, it is not desirable that the maximum by day should exceed by more than 20° the early morning temperature. Thus if a temperature of 60° is indicated in the early morning, it will amply suffice if 80° be attained in the afternoon; if 70° in the morning, then 90° as the day wears, &c. I am now speaking of the spring season. This formula may be increased in a well-studied ratio as the summer comes on, and the young growths, advancing to maturity, provide a larger amount of organisable material to meet the increasing wants of the crop. With the advent of autumn, vegetation being hardened by a summer's exposure, we may safely make use of our knowledge regarding the great amount of heat which tropical vegetation requires. The wood being formed, and the fruit in process of ripening, it will then be proper, with a little less humidity, to allow a maximum temperature of 96° or 100° .

If there is one evil more than another to which gardeners do not give sufficient weight in forcing operations, and which demands our most earnest attention, it is that of allowing excessively high night temperatures. This is a point

second only in importance to securing an ample supply of light, in regard to ultimate success, for a high night temperature too certainly decreases the healthy tone of vitality which a progressive fruit-bearing vegetation should possess, irrespective of any outward symptom of continuity of growth—such a growth, especially, as is accelerated by means of an unnatural night heat. The primary conditions I have endeavoured to impress upon the reader will too certainly be nullified thereby, if this be permitted, since it will absorb or consume that nice soft natural humidity which is so grateful to all forms of vegetation during the night and early morning, leaving in place of its salubriousness, a harsh and arid atmosphere.—WILLIAM EARLEY, *Digswell, Welwyn*.

DOUBLE-FLOWERED PELARGONIUMS.*

 COLLECTION, consisting of forty varieties of these novel and useful plants, was grown at Chiswick during the past year, and formed one of the features of interest in the garden during the late summer months. Having

been received in the spring in the shape of small plants, it was decided to cultivate them in pots under glass, for which purpose these Pelargoniums are especially useful. They were accordingly grown with much success in moderate-sized pots, and bloomed remarkably well in one of the span-roofed greenhouses, their healthy character reflecting much credit on Mr. Barron and his assistants. The accompanying notes indicate the condition as to habit and inflorescence which these plants assumed, and may be regarded as recording as fair a verdict on their respective merits as could be arrived at from the growth of a single individual of each kind. The certificated sorts were the following:—

FIRST-CLASS CERTIFICATES.—Marie Lemoine, Madame Lemoine, Victor Lemoine, Gloire de Nancy.

SECOND-CLASS CERTIFICATES.—Sparkhill Beauty, Impératrice Eugénie, Andrew Henderson, Victor, Wilhelm Pfitzer, Memnon, Le Vésuve, Triomphe de Thumesnil, Triomphe de Lorraine, Signet.

*Andrew Henderson**.*—This variety is of moderately vigorous growth, with faintly zoned leaves, and compact trusses of orange-scarlet flowers very freely produced. It is an ornamental variety well worth growing.

*Gloire de Nancy***.*—A handsome and moderately vigorous-growing variety, still retaining a high position in the double class. It has green leaves, and good bold trusses of well-formed, full double, rosy-carmine flowers. This proves to be also a good bedding plant.

*Impératrice Eugénie**.*—A variety of remarkably vigorous growth, which, in the case of the Chiswick specimen, scarcely proved itself to be a free bloomer. The leaves are indistinctly zonate, and the rosy-pink flowers are full, and sufficiently good to render the variety deserving of further trial. It is reported to have been good in other collections.

*Le Vésuve**.*—A vigorous-growing variety, of erect habit, with faintly zoned leaves, and fine trusses of large, well-formed, full, double flowers, of a light orange-scarlet colour. A very promising sort.

*Madame Lemoine***.*—One of the very best of the varieties in the whole collection. It is dwarfish in habit, with faintly zoned leaves, and large, full, double, bright, rose-pink flowers freely produced in good showy trusses.

* From the Report of the Floral Director in "The Proceedings of the Royal Horticultural Society."

*Marie Lemoine***.*—A variety of first-class excellence. It is of dwarf stocky habit, with flat, faintly zoned leaves, and large-sized flowers, forming abundant, bold, and effective trusses. This variety is much like Madame Lemoine in the colour and general aspect of its flowers; but it is of dwarfer habit, distinct in its foliage, and producing better flowers.

*Memnon**.*—This is a meritorious variety of moderately vigorous growth, with faintly-zoned leaves; the trusses are of fair size and compact, consisting of close, well-formed, light-scarlet flowers. Distinct and promising.

*Signet**.*—A rather desirable variety, of moderately vigorous growth, with the leaves densely zonate, the trusses well filled, and the colour a rosy carmine, in the way of Emile Lemoine; but the individual flowers are of better form.

*Sparkhill Beauty**.*—This variety is of moderately vigorous growth, with faintly zoned leaves, and close trusses of bright rose-pink flowers, very much resembling those of Madame Lemoine; superior to that sort as regards smoothness of petal; but, taking other points into consideration, the preference must be given to Madame Lemoine.

*Triomphe de Lorraine**.*—A variety of some merit, being of moderate growth, with faintly zonate leaves, and close trusses of carmine-scarlet flowers, like those of Emile Lemoine.

*Triomphe de Thumesnil**.*—A vigorous-habited sort of some merit; the leaves are green, not zoned; while the flowers, which are scarlet with a faint tinge of cerise, are large and full.

*Victor (G. Smith)**.*—Dwarf and free-blooming in habit, with the leaves faintly zoned, and the scarlet flowers in compact trusses. The flowers are of the same colour as those of Wilhelm Pfister, and closely resemble those of that variety, but the foliage is smaller. A variety well worth growing.

*Victor Lemoine***.*—One of the finest of the varieties in the whole collection. The plant is of a rather vigorous habit of growth; the leaves are marked with an indistinct zone, and the flower-trusses are larger. The flowers themselves are somewhat rough, having serrated petals; but they form a fine head, and are of a rich orange scarlet, brighter than Le Vésuve.

*Wilhelm Pfister**.*—One of the useful second-class sorts, of moderately vigorous growth, with indistinctly zonate leaves, and fair-sized trusses of good full flowers of a light-scarlet colour.

CAULIFLOWER AND BROCCOLI ALL THE YEAR ROUND.

THESE are vegetables always welcome to every good cook, yet as regards many large establishments, they are often a blank in the culinary list during August and September, and again during December and January.

I manage to avoid this by adopting the following plan, though I should remark, in the first place, that our land is all deeply trenched, and heavily manured:—About the middle of January the first sowing is made in a cold frame; this lot succeeds those sown the previous autumn. The next sowing is made out-of-doors during March, and from this time until the middle of June a sowing is made every fortnight or three weeks, the last two being large ones. About this time sundry crops of early Peas, Potatos, Turnips, Carrots, Strawberries, &c., are being cleared off the ground, and we plant up all vacancies as they occur, so that by August we have a large breadth of Young Walcherens that come in exceedingly useful from September till the new year. Some time during November we lift with balls a considerable number of these, and put them close together in pits or frames, at the bottom of a wall, or, indeed, in any place where they can be easily sheltered during severe frost; and with the protection of a mat or a few branches of Spruce, Yew, or Laurel, they will stand 16° or 18° of frost with impunity. It will thus be seen that we have Cauliflowers from May until January; and notwithstanding the many so-called new varieties that

have appeared of late years with high-sounding names, I find that for hardness, firmness, whiteness, and delicacy of flavour there are none to surpass the old Walcheren, when it is got true.

With regard to the Broccoli, I only sow twice, viz., in the first and last weeks of April. For use during December and January, Backhouse's Early Winter White is by far the best I have tried, as it is hardy, and never fails to head early; this is indeed an acquisition. In succession to it we grow Osborn's Winter White, a very superior sort; and it is in turn succeeded by the Frogmore Protecting, Melville's Hardy Scotch, and Cattell's Eclipse. The latter, if planted on a north border, will last until the end of May.—J. McINDOE, *Palace Gardens, Bishopthorpe, York.*



THE WHITE HOOP-PETTICOAT.

HIIS rare and beautiful hardy early-flowering bulb is the *Narcissus monophyllus* of botanists, and bears the synonyms of *Narcissus Megacodium*, *Narcissus Clusii*, and *Corbularia monophylla*. It is a native of Algiers, where it occurs both on the coast and inland. Our figure was derived from plants which bloomed in January last in the Royal Gardens at Kew.

The bulbs are small and ovate, and usually produce a solitary leaf, though

sometimes two or three leaves are developed. These leaves are filiform, very slender, longer than the scape, which is cylindrical and shortly vaginate; and the flowers are nearly sessile, creamy white, with a crenulate corona of the same colour, an inch in length. The stamens are curved or declinate, and the style is exserted or projecting. The colour of its blossoms, and their fragrance, will certainly render the plant a favourite in gardens, where it will contrast admirably with the deep yellow of the common Hoop-Petticoat and its allies, which are too seldom seen in cultivation.

These plants constitute the genus *Corbularia* of Haworth, a group of *Narcissi* in which the habit of the plant is dwarf and slender, the divisions of the perinth remarkably narrow, and the tubular corona comparatively large and very prominent. They are all floral gems.—M.

A PLEA FOR AN AURICULA REVIVAL.

ONCE upon a time the *Auricula* was looked upon by many florists as the prince of flowers, but now, alas! it seems to be almost forgotten, at least, so far as English florists are concerned. I well recollect the time when, in Lancashire and Yorkshire alone, we could count upon at least a hundred enthusiastic growers and exhibitors of the *Auricula*, many of them at the same time being growers of another favourite, the *Polyanthus*, which was usually exhibited at the same time, and in this way a spirit of emulation was kept up amongst the growers of both. But now, if one was to take a tour through the two counties above named, I do not suppose that a minute search would discover half-a-dozen of *Auricula*-growers of any note. And not in these counties alone, but throughout England, the same want of energy prevails, though why it is so I cannot comprehend. True, indeed, three-fourths of the older *Auricula*-fanciers have gone hence, without leaving young ones in their places. I only know of two amongst those departed ones who have bred florists, and neither of these happen to be *Auricula*-fanciers, although they are spirited growers of Tulips and Carnations.

From what I hear, I believe that the *Auricula* fancy is more alive in Scotland than in England, and that some of the growers there have been labouring hard for years in seedling-raising, with the result that many superb varieties have been produced, which will in certain points, I believe, surpass some of the oldest favourites. Indeed, I feel confident of such being the case, for during the last three or four years I have been favoured by some of my Scotch friends with pips of their seedlings, and many of them are first-class varieties, such as would please the most exacting fancier, even though he may be more or less prejudiced in favour of old varieties. I believe that some of these new sorts will leave many of the older ones quite in the shade.

What is most needed is that a little of the old *Auricula*-fancier's spirit should be stirred up in England, so as once more to bring the old hobby into life and

vigour ; and this, I think, might be accomplished if some of those who are still in the fancy would bestir themselves a little.

A few days ago I had some talk with an old and particular friend, one of the oldest Auricula-growers now left in this locality. He grew a fine collection, so far back as the year 1812, has never been entirely without plants since his commencement, and has still a few of the choicest old varieties ; but he believes himself almost alone as an Auricula-grower, and so he certainly is in this part of the country. I myself was a grower in the year 1814, and remained so up to 1849, and during most of that period had about the largest and most select collection of any one grower in England ; but through engagements in business, which occupied all my time, I was obliged to give up Auricula-growing, though I could not rid my mind of the fancy. Twice since that time I have made a fresh start, but from one circumstance or other have not been able to go into the matter as I should like to do ; still, the old fancy is alive, and it is not at all unlikely that I may try to gratify it yet again. My friend tells me there are scarcely any plants to be met with anywhere. Even in Scotland, he says, there are no large collections such as some of us used to grow in England. I believe this statement is, in the main, correct ; but how is it ? what has become of all the plants ? Surely they have not all died away with the men who grew them. If such is the case, more is the pity, although in one sense it might not be considered so, for should there be something like a speedy revival of the fancy, the plants being scarce, there would be no fear of the market being glutted or over-stocked for some time to come.

Auricula-growing is somewhat different from that of some other florist's flowers, such as Tulips, Carnations, &c. To be successful in growing Auriculas, a little forethought, with a slight degree of labour, will be required in the preparation of suitable composts. I have in former articles recommended the kind of compost which I have myself successfully made use of in preference to any other, and explained the way in which I prepared it. To those who may not have seen these instructions, and who have not previously been in the fancy, I shall be willing to renew these recommendations.—JOHN HEPWORTH, *Huddersfield.*

LINUM TRIGYNUM.

HERE we have a really useful old plant, now seldom met with in cultivation, though it is an object worthy of special notice. It may be had in flower at mid-winter, a season when blossoms are comparatively scarce, and yields for the conservatory a most effective yellow-flowered plant, which, for profusion of blossom, and purity of colour, is unsurpassed. Moreover, it is not a plant which is gaudy to-day and bereft of beauty to-morrow, for it will continue in charming condition for several weeks.

This is a capital time for taking it in hand for the present season's blooming.

It was introduced, in 1799, from the East Indies, and taking into consideration the country from whence it came, one might be led to infer that a stove temperature would be necessary for it ; but this is not the case, an intermediate temperature being the most congenial to its development. In a state of nature its blooming season is June, but in this respect the plant is very accommodating, for by the following treatment, than which nothing can be more simple, it may be had in flower by November.

The plants after flowering should have been rested in a temperature of about 40°, water sufficient only to sustain life having been given at the roots, and the foliage having been kept perfectly dry, as a preventive against damping off, which the stems are subject to do, if exposed to excess of moisture at that particular time. They will now be showing signs of growth, and must be pruned into shape and started. The cutting-back must, in a great measure, be regulated in accordance with the ripeness of the wood, which will now be made discernible by the vigour of the buds. They will break strongest from the ripened portions. When the young shoots are about an inch long, take the plants out of the pots, remove the greatest portion of the soil, trim the roots, and re-pot in a pot corresponding with the reduced state of the root ; afterwards place them near to the glass, in a brisk growing temperature, with the addition of bottom heat ; water carefully at the roots until the plants show signs of active growth, and admit air freely on all favourable occasions.

Under these conditions, they will grow freely. As they advance in growth, the terminal buds should be pinched out, to encourage the formation of lateral shoots. Be careful to re-pot before they get pot-bound. The pots into which they are shifted should be of such a size as to become well filled with roots by midsummer, especially if they are wanted for winter flowering. An 8-in. pot will grow a fair-sized specimen, but smaller plants are readily attainable from cuttings of the young shoots, as they root quickly and freely, and make nice flowering plants the same season.

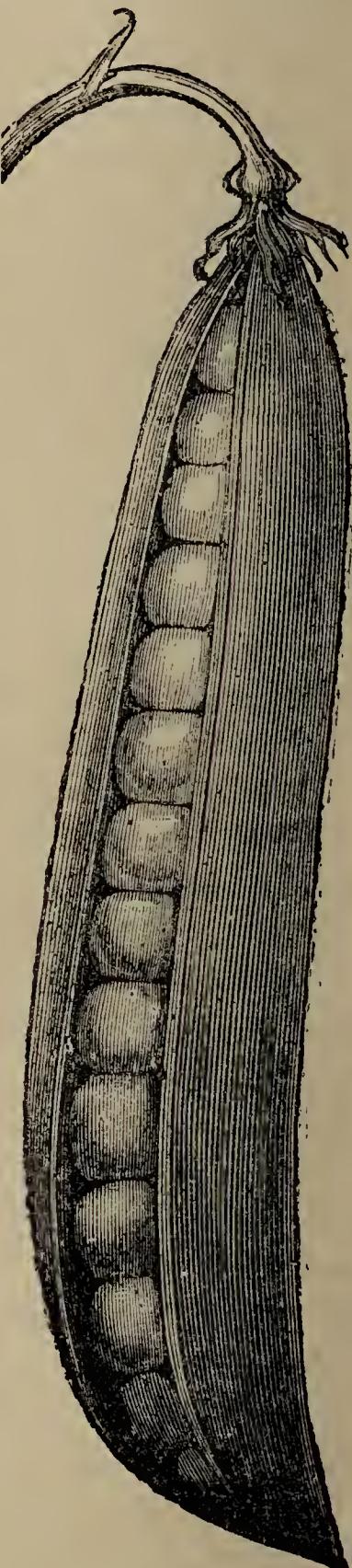
The soil I find them to grow well in consists of equal parts of turf-loam, peat, and a mixture of leaf-mould and dung, with a liberal supply of sharp sand and charcoal. Studioiusly avoid shading them at any period of their growth. My opinion is, that shading is often carried to an unnecessary and injurious excess, especially as regards flowering plants, causing the growths to be drawn up weakly and attenuated ; whereas, by fully exposing the plants to sun, light, and air, we secure a more natural, more rigid and floriferous growth, which is, without doubt, the key to success, in as far as early forcing is concerned. Frequent waterings with clear weak liquid manure may be given beneficially ; they will have the tendency of counteracting the attacks of red-spider, which are very apt to be troublesome, and which must be kept under by the timely application of remedies.—G. WESTLAND, *Witley Court.*

LAXTON'S SUPREME PEA.

SE gave at page 17, a representation of a new pea, raised by crossing one of Mr. Laxton's choice varieties, named Prolific, with a well-known favourite sort called *Ne Plus Ultra*. We add here an illustration of a somewhat older variety, but one which may virtually be regarded as a new pea, and which bears a high character, namely, *Laxton's Supreme*. This is an early variety of the green-marrow race, ranking as a second-early sort of the first quality, and producing large, long, well-filled pods, of a deep green colour, containing 9 or 10 peas, or sometimes more, in each pod. It is not only a fine variety for exhibition purposes, but is also a grand pea for the table. The haulm grows from $3\frac{1}{2}$ ft. to 4 ft. high, and is very prolific; the produce, moreover, is remarkably well flavoured when cooked. This pea was raised from Laxton's Prolific, crossed with Little Gem, and is described in the official Chiswick Report as a variety destined to become largely popular; while, as a mark of their appreciation of its merit, the Committee to which its examination was entrusted awarded it a First-Class Certificate.

Laxton's Alpha Pea, another recently obtained variety raised also from Laxton's Prolific, but crossed with Maclean's Advancer, forms an excellent first-early sort for growing as a companion to Supreme. This latter was awarded a First-Class Certificate at Chiswick, where it was highly spoken of, both as to its bearing properties and its quality. It is a blue wrinkled marrow, and grows about $3\frac{1}{2}$ ft. high.

The great merit of these and similar new varieties of peas, is their earliness, absolute or comparative, combined with high quality in the produce, since they belong to the race of high-flavoured marrows. Hence it may not be an improbable result that ere long the small white round-seeded peas which now represent our earliest class will be fairly driven from the garden. Even now, with Ringleader or First-Crop as the earliest, and then such sorts as Alpha and Advancer to follow in close succession, our lists of first-early peas might well be rid of many incumbrances. We shall from time to time invite attention to the really useful of recent acquisitions, with the view of ministering to this end.—M.



THE PERPETUAL CARNATION.

THE cultivation of this flower is a subject of sufficient importance to claim a small space in your pages, for although it has been spoken and written upon occasionally for some years past, there has been but little done as regards the practical application—the growing part of the question. Although various attempts have been made, they have generally resulted in the production of a few plants, which are kept somewhere in the background, where they yield still fewer flowers, mildew, canker, wire-worm, &c., being made to bear the blame. For about ten years, and from a few dozen plants, I was never without flowers through the winter, but the most magnificent plants I saw were grown by Mr. Barnes, late of Bicton ; each plant was a specimen.

Mr. Howard has given a very sensible article on the subject (see p. 12), but here we like dwarf compact plants in preference to those of 4 ft. in height, and we stop them several times, so that they do not require staking either when in the ground or when potted. I used to strike them round 3-in. pots, which is the best plan when a few hundred only are needed ; but here we strike them by the thousand in the sand-bed of a propagating house, like Verbena cuttings, only they are about three weeks instead of two in rooting. We pot them off in thumb-pots, plant them out early in May, and take them up and pot in 7-in. pots in September, in a mixture of dung and loam. They are watered and shaded for a few days, and then have all the air which it is possible to give them, until cold weather sets in. We give as little fire-heat as possible during the winter, as the flowers come finer without it. We give abundance of water, with guano-water occasionally.

The bulk of the plants are planted in the same kind of soil, on benches near the glass, and these do best, with less trouble, and yield an abundance of cut flowers and plenty of cuttings. Carnations, like Tuberose flowers, are sold by the flower-girls throughout the year.

The varieties grown in this country are mostly American, and many of the sorts are better growers and freer bloomers than those I grew in England. There are dozens of varieties, but I only mention a few of the best sorts, that is, the best growers and freest bloomers, for perfection in form is not so desirable as quantity :—*La Purité*, ruby colour, very free and fine, grown by tens of thousands ; *General Grant*, white, first-rate ; *Flatbush*, large white, very fine ; *Defiance*, large crimson ; *Zebra*, large red ; *Sunset*, pink-striped maroon, free, but a straggly grower ; *President Degraw*, good white, very free, but a loose grower, wants staking, much grown ; *Miniature*, white, sometimes striped rose, very dwarf and free ; *Astoria*, yellow, scarlet, and white, very sweet, good and distinct ; *Amabilis*, fine large pink, varied with rose and white.

Of the above varieties, such as *La Purité* and *Degraw*, there are here houses hundreds of feet in length filled through the winter, and then occupied with

bedding plants in the spring. I should like to get over the Covent-Garden Scarlet, for I believe it is not known in this country. Many of the American varieties would be acquisitions in England.—JAMES TAPLIN, *South Amboy, New Jersey, U.S.A.*

PLANT PROTECTORS.

THOUGH I have no desire whatever to depreciate Mr. Rendle's Patent Plant Protectors—quite the reverse, as I consider them in their improved state as a great boon to practical gardeners, from their possessing a flexibility of adaptation as to form and size, which cannot be claimed by any other small protecting expedients—yet the following quotation from *Loudon's Gardeners' Magazine* (iii. 77) commends itself to more general notice than it has received hitherto, as being highly suggestive. It is headed :—

“ *An Economical Substitute for Hand-Glasses in Gardening. By N. M. T.*

“ Having always had the misfortune to live where there was a scarcity of hand-glasses, I have lately, to obviate this, grown my plants in pots. I do not adopt the common-place plan of stuffing the roots into a pot, and leaving the head out. I do the very reverse of this; I put the head in, and leave the roots out. But a description of my present planting will develop the whole system. The cauliflowers are planted in rows across a 10-ft. border, 3 ft. between the rows, and six plants in a row. After they are planted, I provide a flower-pot (32) for each plant, introducing it through the hole, 1 in. in diameter, in the bottom of the pot. The pot is then firmly pressed down, earthed up about halfway outside to prevent its being upset, and the operation is completed. When protection becomes necessary, I provide a board 9 ft. long and 7 in. wide for each row. These can be laid on the line of pots by a person at each end, as fast as they can walk, and without setting a foot on the border. When the plants begin to look over the pots, the boards can no longer be used as covering; they are then laid between the rows to walk upon. The pots are earthed level with the brim outside, and as much mould put in them as the plants will admit. A pot a size larger than those plunged is then placed beside each, and inverted over it when the plants require shelter. When no longer wanted, the covers are removed, and the plants earthed up as they require it. The pots they grow in are consequently soon buried, where they remain till the cauliflowers are cut; they are then dug up, and laid aside for further use.

“ The advantages of this simple plan are numerous; the economy is self-evident; the appearance neat and orderly, entirely doing away with the lumpish unnatural growths the plants exhibit when grown in hand-glasses. Here each plant forming the centre of its own little world, is left to luxuriate in single blessedness safely guarded from its enemy the slug; the worms even cannot pull a leaf underground. Notwithstanding all these advantages, I do not expect to be much patronized by gardeners, since, I fear, my brethren of the spade are a stiff-necked and rebellious race. It is to the cottage homes of England that I look for support, and proud, indeed, shall I be if I can introduce an additional comfort there. Many of their inmates who cannot spare from 10s. to 15s. for a hand-glass could buy a cast of pots, and enjoy through them a luxury at a season when it is confined to the tables of the rich.”

Cheap and excellent protectors, though possibly now superseded by those of Mr. Rendle; these latter husband more warmth, and shut out more cold, than a common flower-pot, while the glass top is infinitely better than the opaque boarding during a continuance of cold weather. Still, for the mechanic, the cottager, and others with straitened means, the plan of growing the heads of plants in pots is a valuable one. It would answer well for early Potatos, as well as Cauliflowers; and Lettuces and Endive might be so planted for winter use, since it would add to their crispness, and ensure their preservation. The late crops of Seakale and Rhubarb, and strong stools of Asparagus, might be forced in this

way, as well or better than in the usual manner. The bottom of the pots used for these purposes being large, there would be no difficulty in inserting the crowns of the plants. The chief advantages would be greater facility of access, and ease in gathering the crops properly. The drawback would be that the mouths of the pots would require a larger covering than their base. Mr. Rendle's round hand-lights will probably be found the best invention yet offered for these purposes. In the case of Seakale a slate would be substituted for the glass roof. The wide longitudinal protectors, again, would be admirable for forcing single or double rows of Asparagus. Heat could readily be thrown in through the sides, while the glass roof could not fail to impart colour and flavour. However, I must stop, or the charge will justly lie against me of beginning by recommending common garden pots for the protection of the tops of plants, and ending by abandoning such appliances in favour of something better. But the gardening world is wide, and there is room enough for all such expedients, and as many more as can equal or excel them in merit or usefulness.

—D. T. FISH, F.R.H.S., *Hardwicke, Bury St. Edmund's.*

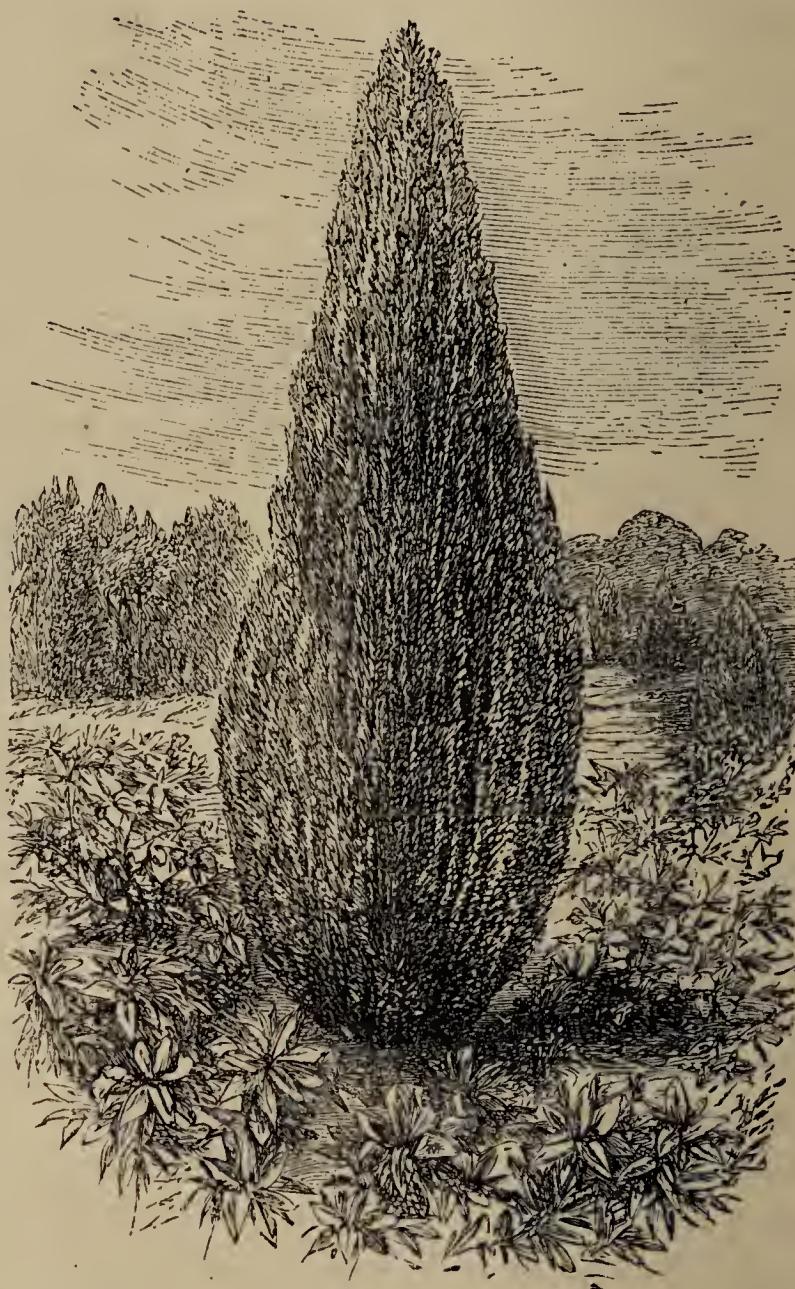
CUPRESSUS LAWSONIANA ERECTA VIRIDIS.

THE history of this beautiful Coniferous evergreen, of which examples were recently shown by Mr. Anthony Waterer, at South Kensington, is, as we learn from Mr. Waterer, as follows:—It was a seedling raised and selected at Knaphill, from the original batch of *Cupressus Lawsoniana* imported from California. The original plant, which is consequently about 16 or 17 years old, was grown on for several years, with the object of fully testing its merits before it was distributed, and eventually, when its character was satisfactorily established, it was propagated and partially sold under the name of *C. Lawsoniana erecta*. Of late years, however, and especially since the destructive frost of 1867, its great merit has been more distinctly recognized, and examples of it submitted to the Floral Committee on the 16th of February last, were unanimously awarded a First-class Certificate. On this occasion, in order to distinguish it from other distinct forms which have been named *erecta*, the Committee gave it the designation, *erecta viridis*, as marking one of its most distinctive features.

There can be no question that this is one of the very finest hardy coniferous evergreens which has been introduced to our gardens—truly and emphatically evergreen, for despite any amount of cold or heat, damp or drought, it maintains throughout, from the circumference to the centre, a hue of the freshest and brightest green. But this truly evergreen character is not its only merit. Its narrow, erect, slightly pyramidal, almost columnar mode of growth, is unapproached for symmetry and beauty by any other of our hardy evergreens; while the slender ramifications of its close-set compact branches and branchlets give it a degree of refinement which is not often seen amongst hardy subjects. This Knaphill Cypress we have ourselves watched for several seasons, and can bear

testimony to the fact that in a locality and climate where Araucarias have perished by thousands, and though it has never been protected in the slightest degree, it is utterly unaffected, both as to vitality and hue, by the severest frosts.

The parent plant, represented in the accompanying woodcut, reduced from a photograph, is about 9 ft. high, and 3 ft. through its widest part. The growth is so close and dense as to form a solid mass of spray, which is flattened, and set in a direction radiating with remarkable regularity from the centre or axis of the plant, and it is perhaps in some degree owing to this peculiarity of growth that the branchlets remain green to the very centre. In its symmetrical outline, in the regularly radiating vertical ramifications, in the slender, graceful character of the everywhere erect spray, there is about this plant an air of refinement rarely met with, and which, combined with its bright and enduring verdure, stamp it as a gem of the first order amongst hardy evergreens.—M.



HOLLYHOCKS FOR EXHIBITION.

HE N planting out the Hollyhock to grow for exhibition purposes, the plants should be in rows 4 ft. apart, and the plants 3 ft. apart in the rows. The ground best suited for them is rich old garden soil, well trenched over to the depth of 2 ft., with plenty of thoroughly-rotted manure dug in with it. If the subsoil is wet, they will thrive remarkably well in the summer, but if the plants are allowed to stand out all the winter in such a situation, they will undoubtedly suffer. In planting, the grower should endeavour to secure as much as possible of floral effect, and should therefore endeavour to get the tallest growers in the centre of his bed or quarter, and arrange the colours so as to harmonize the one with the other as much as possible. Plant out in March or April, putting in about the roots some manure, mingled with soil. When the

plants are about a foot in height, they should be thinned, allowing each plant to carry one, two, or three spikes of bloom, as the case may be, according to the strength of the plant; when tall enough, each of these should be supported by a stake some four feet in height, driven firmly into the ground. Growers invariably recommend that the stakes be placed in position early in the season, and the young shoots be carefully tied to them, so as to induce erect growth. When intended for exhibition, the flower-buds will have to be thinned, so as to give the flowers ample room to expand.

The following varieties constitute a fine eighteen, and can be confidently recommended for exhibition purposes. They are selected for the fine spikes they form, as well as for the quality of the individual flowers:—

Countess of Craven.—Delicate rosy peach.
Earl of Rosslyn.—Bright glowing scarlet.
Fred Chater.—Pale yellow.
Invincible.—Deep salmon, tinted with rose.
James Whitton.—Clear rosy salmon.
J. B. Ullett.—Bright rosy crimson.
Lord Clifden.—Light rosy crimson.
Lord Rokeby.—Bright magenta.
Lord Stanley.—Dark ruby crimson.

Mrs. P. Bruce.—Light rosy peach.
Mrs. Downie.—Delicate soft salmon rose.
Miss Young.—Light rosy crimson.
Octoroon.—Dark mauve maroon, fine and distinct.
Orange Boven.—Deep clear apricot.
R. B. Laird.—Dark-shaded ruby crimson.
R. G. Ross.—Deep rose.
Tournament.—Light salmon rose.
Mrs. Todd.—Light rosy peach.

The surface soil round the plant should be well mulched with rotten manure during the summer, and in the event of drought prevailing, there must be no stint of water. There must also be some shading arranged, if the exhibitor would have pure and finely-finished flowers, for splashed and otherwise disfigured flowers are a great eyesore on the exhibition table, and invariably fatal to the chance of winning a prize.—*Quo*.

NOVELTIES, ETC., AT FLOWER SHOWS.

RADE at the earlier floral meetings of the year, meritorious novelties are becoming more and more numerous, as the season advances. January introduced us to a finely-coloured *Cyclamen persicum*—*kermesinum*, from Mr. Welsh, of Hillingdon, which had very deep rosy-crimson flowers, with a rich crimson mouth. This had a First-Class Certificate; while a Second-Class was given to *Cerasus Laurocerasus rotundifolia*, a new laurel from Mr. W. Paul, remarkable for its compact habit, and shorter, rounder leaves. The gems of this meeting were some choice forms of *Cattleya Trianae*, from W. Marshall, Esq., some of which gained First Certificates, namely, *Atalanta*, *Venus*, *Io*, and *Penelope*; they range from pale blush to pale rose, with richly tinted lips of varied hue. The February meeting brought another of these orchid gems from the Farnham Castle collection, *C. Trianae Laurenceana*, a very large, deep blush flower, beautifully coloured; and *Libonia penrhosiana*, from the garden at Penrhose, a very interesting hybrid, deserving a higher award than the Second-Class one it received. It was raised from *Libonia floribunda*, fertilized with *Sericographis Ghiesbreghtiana*, and was an evident cross, the leaves being larger

and more ovate, and the flowers of a deeper and more fiery colour than those of its mother, while the bushy, free-flowering, twiggy habit remained the same.

The March meetings have been more prolific. We may credit the meeting of March 2 with an elegant pinnate Palm, from Mr. Williams, called *Dæmonorops plumosus*; a fine hybrid orchid, with French white flowers, and small amaranth spot on the lip, from Messrs. Veitch and Sons, called *Lælia Pilcheri alba*; and *Agave cuspidata*, a succulent, with oblong spathulate leaves terminating in a long red spine, from the garden of W. Wilson Saunders, Esq. The beautiful *Hybrid Perpetual Rose*, *Marquise de Mortemart*, one of last year's batch of French Roses, was exhibited by Mr. Charles Turner, and was awarded a First-Class Certificate; the flowers have a deep blush centre, while the exterior is of a pale pink, and they are full, and of a finely cupped shape. Its adaptability for forcing appeared to be as well assured as its fine qualities.

The meeting of March 16 brought together some pretty novelties, in addition to the Hyacinths, Orchids, &c. The Messrs. Rollisson and Son, Tooting, received a First-Class Certificate for *Epacris hyacinthiflora carminata*, a very pretty, deep bright rosy pink, of compact growth, and having the flowers freely produced. Similar awards were made to Mr. B. S. Williams for *Solanum Pseudo-Capsicum compactum*, a really compact though vigorous hybrid form, which bore its highly coloured berries profusely; to Mr. C. Turner, for *Primula sinensis semi-duplex striata*, a semi-double variety, with stripes and very small spots of pale rose on a white ground; and to Messrs. Veitch and Sons, for *Rhododendron multiflorum*, a dwarf white hybrid Rhododendron, very free flowering, and appearing well adapted for forcing; this had previously received a Second-Class Certificate when exhibited by its raiser, Mr. Davies, but was now shown in a much better condition. It is quite hardy, and has the merit of flowering readily with scarcely any forcing if taken up early, potted, and kept under glass. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, had *Pink Mrs. Pettifer*, a new forcing variety, white, with rosy-crimson blotches in the centre, small, but free-blooming, and very fragrant. Mr. Ware also exhibited pans of *Scilla sibirica*, *S. bifolia*, *S. bifolia alba*, and *Saxifraga oppositifolia major*, all charming spring-blooming plants, the last named quite a gem. Several other first-class plants shown at these several meetings are reserved for special notice.—R. D.

GARDEN GOSSIP.

ROM the last issue of the Royal Horticultural Society's Proceedings, we learn that the collection of *Bedding Pelargoniums* at Chiswick, which comprised in 1869 about 850 varieties, had been reduced by discarding some 445 sorts which had either become superseded, were not adapted for outdoor culture, or were not required in consequence of their close resemblance to other but better kinds. The following varieties obtained certificates during the season:—*Vesta*, *Vesuvius*, and *William Underwood*, in the class of scarlet zonals; *Clio*, a rosy-scarlet zonal; *Advance*, a rosy-pink self; *Beauty of Lee*, a rose-pink zonal; *Rev. W. F. Radclyffe*, *The Moor*,

and *Plutus*, among gold or bronze zonals; *Amy Richards* and *Sir R. Napier* among golden-variegated zonals; and *Miss Kingsbury*, a silver-margined sort.

— As a companion to the Fairy Apple, which we have recently figured, we may mention the *Imperial Crab*, a beautiful deep red fruit, resembling the Red Astrachan Apple, of which a prettily executed drawing was exhibited by Messrs. Paul and Son, at the meeting of the Royal Horticultural Society, on the 16th ult.

— M. NAUDIN has observed that *Palm Trees* (*Chamaerops*) have a remarkable power of resisting cold. In a snowstorm which took place last January in the Eastern Pyrenees, and in which the snow continued to fall without interruption for 44 hours, the Palms were crushed down and flattened by the weight of snow, and remained in this state for a period varying from eight to twelve days, after which, a thaw supervening, they resumed their usual attitude, neither leaves nor branches seeming to have suffered any injury.

— THE *Gladiolus Show*, to be held at South Kensington on August 16th, has been considerably augmented by subscriptions from cultivators of this flower, so that prizes of £10, £6, and £4 are now offered to Foreign growers for 36 cut spikes; while nurserymen are offered £7, £5, and £3 for 36, and £5, £3, and £2 for 18 cut spikes; and amateurs have before them the following prizes for competition:—£5, £3, and £2 for 12, £3, £2, and £1 for 9, and £2, £1 10s., and £1 for 6 cut spikes. The exhibitors in the larger are not to show also in the smaller classes.

— IT is stated that *Coffee* is a valuable Disinfectant, not only rendering animal and vegetable effluvia innocuous, but actually destroying them. A room in which meat in an advanced degree of decomposition had been kept, was instantly deprived of smell on an open coffee-roaster containing coffee being carried through it. Another room, exposed to the effluvium occasioned by the clearing-out of a manure-pit, and in which sulphuretted hydrogen and ammonia in great quantities could be chemically detected, had the stench completely removed in half a minute, on the employment of 3 oz. of fresh-roasted Coffee. The best mode of using the Coffee is to dry the raw bean, pound it in a mortar, and then roast the powder on a moderately-heated iron plate, until it assumes a dark brown tint; then to sprinkle it in the sink or cesspool, or lay it on a plate in the room to be purified. Coffee-acid or Coffee-oil are said to act more readily in minute quantities.

— THOUGH pushed out of many bedding arrangements by the ubiquitous *Pelargonium*, the *Verbena* is, nevertheless, very desirable in certain cases, and worth growing, even if only for the sake of affording variety. Mr. John Fraser has paid some attention to the selection of such as prove to be first-rate for general bedding-out, and the following are some of Mr. Fraser's "extra selected" sorts:—*Reine des Roses*, rose, lemon eye; *Moonlight*, white; *Achievement*, deep rose; *Foxhunter*, scarlet; *Annie*, pink and white striped; *Blue King*, light purplish blue; *Princess of Wales*, white striped, pale pink; *King Charming*, bright orange-rose, with lemon eye; *Grand Duchess*, white, with lilac-crimson centre; *Crimson King*, crimson-scarlet, with lemon eye; *Snowball*, white; *Mademoiselle Marie Rendatler*, purple, lemon eye; *Delicata*, rosy crimson, pale lemon eye; *Dante*, scarlet; *Ariosto Improved*, rich purplish maroon; *Mrs. Holford*, white; and last, though not least, *Purple King*. These are all first-rate, and can be depended upon for a display of bloom.

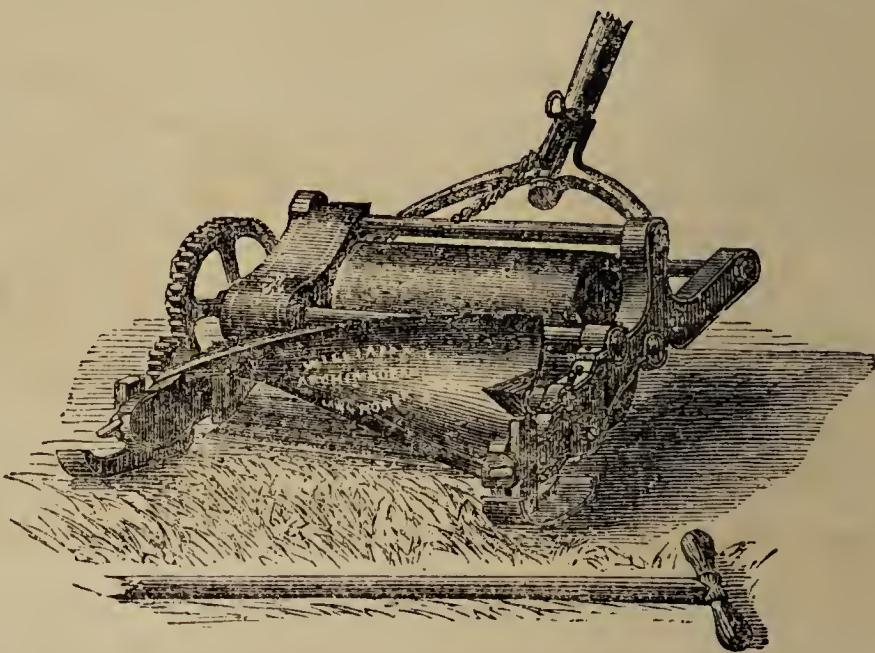
— THE new *Violet*, *Marie Louise*, is announced by M. Van Houtte, in a recently issued number of his excellent *Flore des Serres*, as a variety of great merit and excessively odoriferous, the flowers very large and very double, brilliant and distinct in colour, having the outer part of a lavender-blue, and the centre white. The flower-stalks are long and firm, and altogether, he says, the new variety is one of very choice quality, bearing an entirely novel aspect.

— HERE is a Turkish receipt for a *Cement* used to fasten diamonds and other precious stones to metallic surfaces, and which is said to be capable of

strongly uniting surfaces of polished steel, even when exposed to moisture:— Dissolve five or six bits of gum mastic, each the size of a large pea, in as much spirit of wine as will suffice to render it liquid. In another vessel dissolve in brandy as much isinglass, previously softened in water, as will make a two-ounce phial of strong glue, adding two small bits of gum ammoniac, which must be rubbed until dissolved. Then mix the whole with heat. Keep in a phial closely stopped. When it is to be used set the phial in boiling water.

— *The Archimedean Lawn Mower* is of an entirely novel construction, as the accompanying figure will show. The grass is, indeed, cut by revolving metal plates set in motion by

a roller in the usual way, but the knife itself is of the form of the Archimedean screw, and revolves with great rapidity. There is no roller in front of the knife, but in front on each side is a flat iron sole or skid, upon which it slides smoothly along, and by adjusting which the height of the cutter is easily regulated. The grass, when cut, instead of being gathered up, is scattered over the ground as the machine passes along, and being cut in small particles, and evenly scattered on the ground, it never looks untidy. This cut grass, moreover, serves as a mulch to protect the roots of the grass from heat or drought. The machine will cut wet grass equally as well as dry, and, if requisite, a much heavier sward may be cut than with other machines. Both at Battersea Park and at Chiswick it has met with high approval, and Mr. Barron reports it to be the quickest, most simple, and most efficient mower he has ever used.



— *The fertilization and fructification of Encephalartos Lehmanni* have recently taken place under interesting circumstances in the nursery of M. Jean Verschaffelt, of Ghent. The fertile cones of this plant resemble in form and size a large Pine-apple. M. Verschaffelt recently imported from the Cape a number of trunks in a dormant state, and deprived of their leaves. When placed in heat some began to produce fronds, and others inflorescence, male and female. The pollen from the stamen-bearing catkins was dusted over the female cones in the ordinary way, and the result was the production of numerous fertile seeds.

— PROFESSOR Asa Gray has recently pointed out that the name of *Aquilegia truncata* is that which by the law of priority belongs to the Californian species of Columbine cultivated in gardens under the names of *A. eximia* and *A. californica*. The earlier name is particularly characteristic, as the species is perfectly recognizable by its reflexed spreading sepals and truncate petals, these reduced to a spur, with hardly a vestige of lamina.

Obituary.

— WILLIAM S. WILKIE, Esq., died on February 18th, at his residence Whitefields, Phoenix Park, Dublin, in his 77th year. In his early days Mr. Wilkie was employed at Woburn Abbey, but during the last 35 years he filled the important post of Bailiff of Phoenix Park, and during the previous 17 years he was head-gardener to the Irish Secretaries who successively resided in the park. With refined taste he had also urbane manners, which endeared him to all who knew him, high and low. The Dublin Board of Works, and the horticultural public generally in Ireland, have lost in him a valuable officer.



Camellia Léopold Ier.

CAMELLIA LEOPOLD IER.

WITH AN ILLUSTRATION.

CE figure this Camellia, not for its absolute novelty, for it is now some few years old, but as one of the most beautiful and useful of modern varieties. As shown by our illustration, the flowers are above medium size, beautifully imbricated, and highly coloured, while the foliage is good, the habit vigorous, and the plant remarkably floriferous,—qualities which stamp it as a Camellia of the very first rank.

The CAMELLIA LEOPOLD IER was raised by M. De Coster about 1856, and passed over to M. Jean Verschaffelt, by whom it was exhibited before the Société Royale d'Agriculture et de Botanique de Gand, in 1861, when it was awarded the medal offered for the most beautiful seedling Camellia. We are indebted to Mr. Bull, of Chelsea, for the opportunity of figuring it.

The habit of the plant is pyramidal, and well branched ; the foliage is ample, ovate-lanceolate, acuminate, and of a beautiful deep, glossy green ; the flowers are large, exactly imbricated, and of a vivid carmine crimson, becoming shaded with rose at the margin. It is a most valuable variety for general cultivation—not yet well enough known, nor widely enough distributed.—T. M.

ALPINE FLOWERS FOR ENGLISH GARDENS.

AUCH is the title of an admirable book,* in which Mr. Robinson gives us the results of his experiences amongst Alpine flowers, not only as met with in their native homes, but also as seen—too often, indeed, struggling for existence—in gardens and on artificial rockeries. Alpine flowers represent a branch of modern gardening which was waiting to be competently discussed, and we can assure those who may be seeking for information thereon, that in Mr. Robinson's book they will find full justice done to the subject, and that by a loving hand, for to him both Alpine plants and their culture are familiar as household words, and hence his teachings on these subjects carry with them the weight of authority.

Alpine flowers are in very many cases the most brilliant and exquisite of earth's living gems; but though their beauty and the vividness of their colouring are well known, yet somehow or other the idea has been formed, and held to with much tenacity, that these cloud-born subjects of Flora's kingdom are not to be kept in health and vigour when confined to lowland gardens. The object of the book before us, we are told in the Introduction, is to show this to be an error, and to prove that intelligent cultivation will prove as successful with the plants of the coldest and most elevated regions, as it has already proved with the choicest plants of steaming tropical forests.

* *Alpine Flowers for English Gardens.* By W. Robinson, F.L.S., Author of "The Parks, Promenades, and Gardens of Paris." With numerous Illustrations. London: Murray.

The "Alpine plants" of the horticulturist include the vegetation of all elevated regions, whether in the tropic or temperate zones—all plants, in fact, which clothe high mountain chains and peaks, where above the cultivated land they fringe the stately woods, and are seen in multitudes in the vast and delightful pastures, enamelling their soft verdure with innumerable dyes. There, "where neither grass nor loose herbage can exist, where feeble world-heat and world-force are quenched and discomfited on their own ground by mightier powers, where mountains are crumbled into ghastly slopes of shattered rock by contending throbings of heat and cold, and where the very water becomes hard and relentless as stone, yet bears and moves thousands of tons of rock as easily as the Gulf Stream carries a seed," these Alpine flowers fringe the vast fields of snow and ice, and at great elevations have often scarcely time to flower and ripen a few seeds before they are embedded in the snow. The Alpines have the charm of endless diversity of form and colour:—

"Among them are little orchids, as interesting as their tropical brethren, though so much smaller; Liliputian trees, and even a tree-like moss (*Lycopodium dendroideum*), that branches and grows into an erect little pyramid, as if in imitation of the mountain-loving Pines, which, in their massy strength, are often tortured into quaintness by storms, but rarely submit to become miniatures of what they are in lower regions; ferns that peep from narrowest crevices of high rocky places, often so small and minute that they seem to cling to the rocks for shelter, not throwing forth their forms with airy grace as they do in more favourable scenes; numerous bulbous flowers, from Lilies to Bluebells, which appear to have been refined in Nature's laboratory, all coarseness and ruggedness eliminated, all preciousness and beauty retained; evergreen shrubs, perfect in leaf and blossom and fruit as any that grow in our shrubberies, yet so small that an inverted finger-glass would make a roomy conservatory for them; creeping plants, like their mountain brethren, rarely venturing above mother earth, yet trailing and spreading freely along it; and when they crawl over the brows of rocks or stones, draping them with curtains of colour as lovely as any afforded by the most vigorous climbers of tropical forests; 'foliage plants,' small, it is true, yet far more interesting than the huger ones which we grow under this name; numberless minute plants that scarcely exceed the mosses in size, and quite surpass them in the way in which they mantle the earth with fresh green carpets in the midst of winter; and 'succulent' plants in endless variety, which yield not in beauty to those of America or the Cape; though frequently smaller than the very mosses of our bogs, and which in losing the stature of their lowland brethren, have replaced their horrid spines with silvery spottings and lacings. In a word, they embrace nearly every type of the plant-life of northern and temperate climes, chastened in tone and diminished in size, and infinitely more attractive to the human eye than any other known—'a veil of strange intermediate being; which breathes, but has no voice; moves, but cannot leave its appointed place; passes through life without consciousness, to death without bitterness; wears the beauty of youth without its passions; and declines to the weakness of age without its regret.'"

The first division of this book (pp. 1-120) is devoted to matters of culture, with



ARTIFICIAL RAVINE IN ROCK-GARDEN.

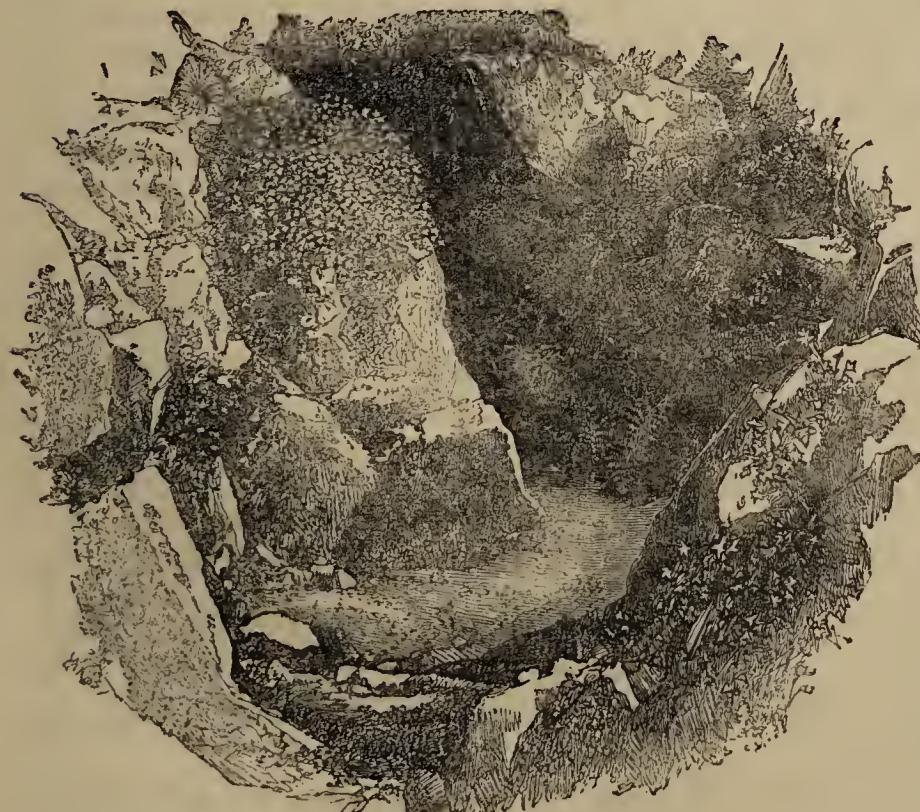
all necessary details for constructing rockwork or rock-gardens, finishing up with "a little tour in the Alps;" while the second division (pp. 121-373) contains an alphabetical enumeration of the choicest Alpine plants, with special directions for

culture, and useful select lists of Alpines adapted for various purposes. There is a very complete index, and the volume is illustrated by a large number of woodcuts, some of which we are enabled to introduce through the courtesy of the author.

Perhaps there is no feature of decorative gardening which has been in a more unsatisfactory state than that of the construction of rockeries or rock-gardens for the

culture of Alpine and allied plants. The most deplorable fault in the construction of such gardens, and one which we are told is far too common, is that of so arranging the materials used in forming it, that they seem to have no connection

with the soil of the spot where they are placed. Instead of allowing what may be termed the foundations of the rock-garden to barely show their upper ridges above the earth, thereby originating much more endurable ideas of "rock" than those suggested by the unmeaning masses usually seen, the stones are too often placed on the ground, with much the same idea that animates a bricklayer in setting bricks. A few loads of well-selected stones ar-



PASSAGE FROM ROCK-GARDEN TO FERNERY.

ranged so as to peep out here and there from some gentle isolated mound or open sunny spot would produce a far better effect than many hundred tons placed in the common way. On this question, the construction of rockwork,

we find an illustrated communication from Mr. James Backhouse, of York, whose experience in this matter is second to none. His remarks are as follows:—

"Comparatively few Alpines prefer or succeed well in horizontal fissures. Those, however, which, like *Lychnis Viscaria* and *Silene acaulis*, form long tap-roots, thrive well in such fissures provided the earth in the fissures is continuous, and leads backwards to a sufficient body of soil. Where the horizontal fissures are very narrow, as at A, owing to the main rocks being in contact in places, and leaving only irregular and interrupted fissures, such plants as the charming *Lychnis Lagascae*, *L. pyrenaicia*, and others, bearing and preferring hot sunny exposures, do well. But many plants that would bear the heat and drought if they could get the roots far enough back, would quickly die if placed in such fissures, from the paucity of soil and moisture near the front. Therefore, it is usually better in building rockwork with these fissures to keep the main rocks slightly apart by means of pieces of very hard stone (basalt, close-grained 'flag,' &c.), so as to leave room for a good intermediate layer of rich loam, stones, or grit, mingled with a little peat."

"As a rule, oblique and vertical fissures are both preferable to horizontal ones, but care should be taken with oblique fissures that the upper rock does not overhang. A plant placed at G will often die, when the same placed at H will live, because the rain falling on the sloping face of rock at I will drop off at J and miss the fissure G altogether, while that falling on the sloping face of rock at K will all run into the fissure H. There are, however, some plants, like the rare *Nothochlaena Marantae* and *Androsace lanuginosa*, which so much prefer positions dry in winter, that a fissure like G would suit them better than one like H. Such are some exceptions to a general rule."

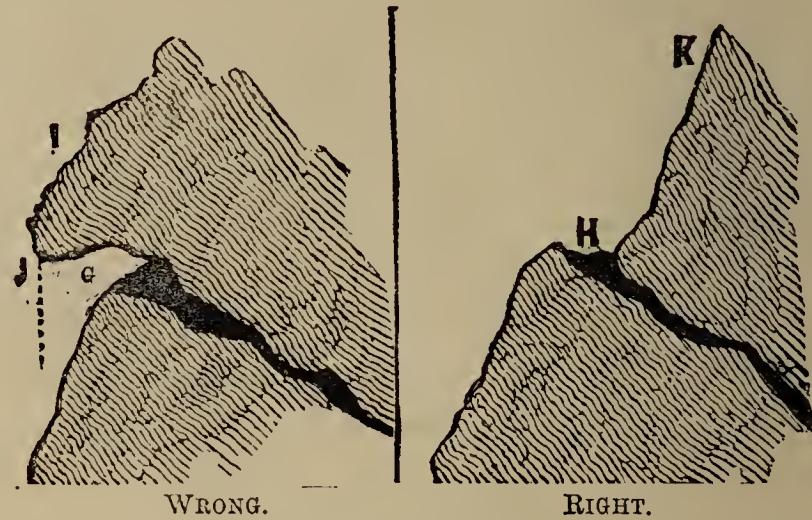
"Vertical fissures (which suit many rare Alpines best of all) should always as far as possible be made narrower at the bottom than at the top. If otherwise, the intervening earth, &c., leaves the sides of the rock as it 'settles,' instead of becoming lighter. In M, as the total mass of soil sinks, it becomes compressed against the sides of the rock, while in N the soil leaves the sides of the fissures more and more as the mass sinks, and almost invariably forms distinct 'cracks' (separations between the soil and rock) sooner or later.

The same principle applies to small stones in fissures. To prevent undue evaporation in the case of such fissures as M, stones larger or smaller may be laid on the top of the soil, care being taken not to cover too much of it, to the exclusion of rain."

"I believe the best local positions for very high Alpines are narrow fissures catching the sun for several hours each day, but having a gentle slope to the northward; and if the rock-work can be so arranged that a high 'range' of 'crag' at its eastern end may cut off the sun till near noon from the great fissures above alluded to, so much the better. Screen from heat is worth double as much in the morning as it is in the afternoon."



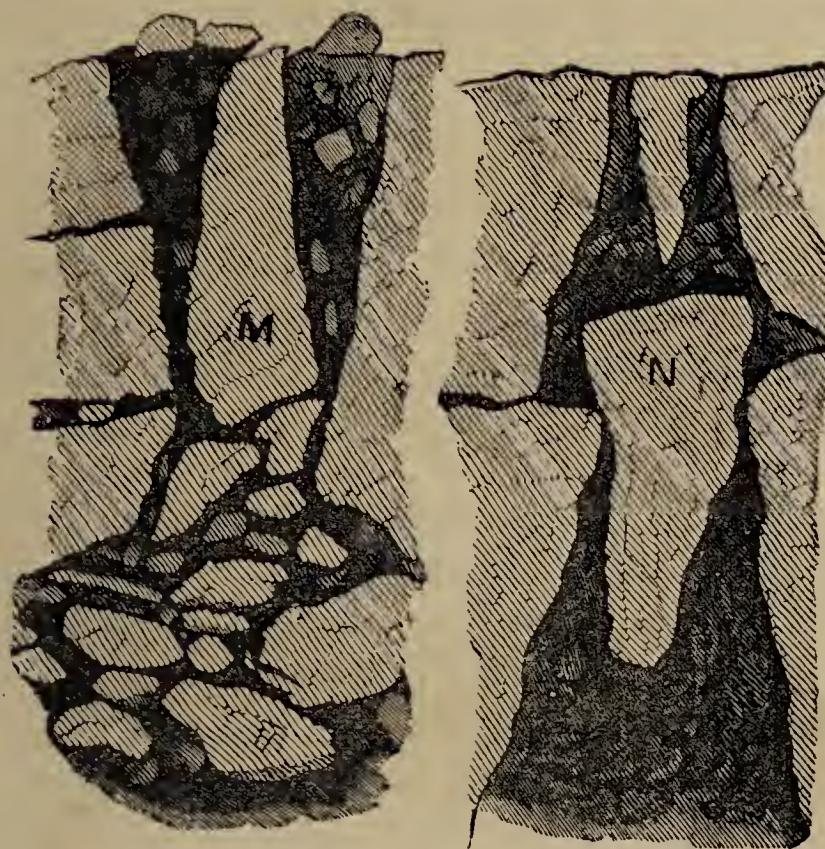
ROCKWORK WITH HORIZONTAL FISSURES.
A, *Silene alpestris*; B, *Lychnis Viscaria*; C, *Silene acaulis*.



RIGHT.

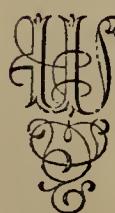
These general hints, which apply to all rockwork, are extremely valuable, but all rockeries cannot be made to imitate Alpine scenery, and some persons have

to be contented with imitations of walls and ruins. For such, illustrations, bearing on the construction of these, are given. By building a rough stone wall, and packing the intervals as firmly as possible with loam and sandy peat, putting perhaps a little mortar at the outside of the largest interstices, a host of brilliant gems may be grown with almost as little attention as we bestow on the common ivy. When consolidated, the materials of the wall would afford the very kind of nutriment required by the plants.



The descriptive and cultural notes on the species recommended for their utility or beauty, which form the second part of the book, are amply sufficient, with the select lists given, to afford a general notion of the aspect of the plants, and of their special requirements and adaptabilities.—T. M.

ROSE HEDGES.

HEN the new kitchen garden was formed here, I had five Rose Hedges planted across one of the divisions, for shelter and ornament. The roses were taken from an old botanic garden and rosary, that had been planted 60 or 70 years ago. These hedges when in flower are interesting now from the presence of many old summer roses, which in their day held the first place in the catalogues. The Roses Celestial, Stadholder, White Provence, and Tuscany, which latter is darker and more velvety than any of our new roses, show well in these hedges. I have lately commenced budding some of the best hybrid perpetuals on some of the strong-growers, on purpose to have roses in autumn. Two hedges were likewise planted with the old Cabbage, and Damask Rose, and they furnish an excellent supply of rose-leaves every summer, for drying and distilling purposes.

By the side of two borders near a walk, I have lately planted on each side a Rose Hedge formed of varieties of Noisette roses, such as Fellenberg, Aimée Vibert, Compacta, Floribunda, and Céline Forestier. When planted by itself, as a hedge, Fellenberg is one of the best of all the Noisettes, for it is in flower all the

summer and autumn, and its colour is dark and fine. Mixed, however, with the other sorts above named, a fine effect is produced. A rose hedge formed of these Noisettes round rosaries, in pleasure grounds, or even in kitchen gardens, will be found to yield one of the most pleasurable sights imaginable.—WILLIAM TILLERY, Welbeck.

THE GARDEN MENTOR.

AY witnesses rapid progress in vegetation, owing to the increased amount and longer duration of heat and light. Much forethought and energy are consequently necessary to keep up with the work, and to give timely and proper attention to everything.

KITCHEN GARDEN.—I again urge the necessity of timely attention to the thinning-out of young crops, and of keeping the surface-soil frequently stirred between the rows. Advantage should be taken of showery weather to plant out young crops. *Brussels Sprouts*, *Savoys*, and *Borecole* for autumn use, should be planted out on well enriched land; and *Cauliflowers* and *Lettuces* for succession should also be planted. This is a good time to plant *Asparagus*; the roots should be carefully lifted, and planted without injury, and the stems should afterwards be tied to stakes, to prevent their being broken by the winds. The earliest *Celery* should be planted out, in well manured trenches; if the weather afterwards be dry, it must be well watered, and if frosty nights occur, some fir or laurel branches should be placed over the trenches. *Tomatos* may be planted towards the end of the month, at the foot of a south wall. The material used for blanching *Seakale* should be cleared away. *Herbs* of all kinds may be planted. *Potatos* should be earthed up when fit, also *Cauliflowers*. *Peas* should be rodded when they require it. *Celery* for the late crop should be pricked out.

Sow: Peas, two or three times during the month, on deeply trenched ground; they should not be sown too thickly. Beans, twice during the month. Scarlet Runners, a full crop. Dwarf Kidney Beans, at the beginning, and again towards the end of the month. A good breadth of Turnips. Cauliflowers, a good breadth for autumn and winter supply. Spinach, Lettuce, and Radish for succession. Mustard and Cress, once a week. Parsley, a good breadth for winter and spring use. Sweet Basil and Marjoram, on a warm border. Vegetable Marrow and Cucumber for ridges.

FORCING HOUSES.—*Pines*: To keep a steady bottom-heat of about 85° is one of the most important matters to be attended to in Pine-growing; it should not rise or fall much below this point. The now increasing day temperature may cause it to rise too high, therefore this must be watched for, and guarded against. Fruiting and succession plants should now have liberal supplies of water, and the former liquid manure occasionally. Tie up the fruit to stakes, to keep them in an erect position; when this is not attended to the crowns often grow crooked. Keep a moist, growing atmosphere; give air in good time in the morning, and close early in the afternoon. *Vines*: Keep up good fires in all the houses, but be careful to give abundance of air during the daytime, when the weather permits. Some air should be left on at night where grapes are

ripening. Keep laterals stopped ; remove all superfluous shoots ; thin the berries as soon as they are fit. Attend to the thinning, stopping, and tying-in of the shoots in the late houses. Keep up good fires whilst the vines are in flower. *Peaches*: Keep the inside borders well watered whilst the fruit is swelling off ; when it begins to ripen, gradually withhold water, and give abundance of air. Syringe late houses every afternoon ; keep up a moist atmosphere, and have all the shoots stopped and tied down. *Figs*: As the first crop of fruit will now be ripening, only sufficient water should be given to prevent the second crop of fruit from falling off ; give air freely, and keep a moist atmosphere, to keep down the red spider. *Strawberries*: When very large fine fruit is required, the weaker blossoms should be pinched off, as soon as a few of the finest blooms are set, and the plants should have a clear, moist atmosphere, as near the glass as possible, and should be frequently watered with liquid manure. *Cucumbers and Melons*: Keep a steady bottom-heat to both. Do not let *Cucumber* plants carry too much fruit at one time, as this soon weakens them ; keep a moist atmosphere, and try to keep the foliage clean and healthy. Put some slates or pieces of glass under *Melons*, to prevent the soil from damaging the fruit, and lift them near to the glass. Plant for successional crops.

HARDY FRUIT GARDEN.—All the materials used for coverings should be removed clean away as soon as the fruit is considered safe from all injury from frosts. *Apricots*, *Peaches*, and *Nectarines* have been very full of blossom, and have set very thickly ; they will be a good crop everywhere this season. The fruit should be well thinned at once, and should be looked over once or twice afterwards, to see that too many are not left on for a crop. The disbudding of the shoots must now be regularly attended to. It is better to go over the trees at intervals of a few days, removing some shoots each time, than to remove them all at once. The trees should have a few good syringings on fine afternoons with the garden engine, to cleanse them from filth and insects. Attend to the stopping of all fore-right shoots on *Apricots*, *Pears*, *Plums*, and *Cherries*. Mulch, if not previously done, and water newly-planted trees. If the weather be dry, *Strawberries* will be benefited by a good soaking of water ; but if it cannot be done effectually, it should not be attempted.

FLOWER GARDEN.—*Plant Houses*: Abundance of air should now be given at every favourable opportunity. The greatest watchfulness and attention will be necessary to keep down insects, which on no account should be allowed to get ahead. *Soft-wooded plants* will be growing freely and vigorously. Shift all plants that may require it ; water freely overhead, and close up early in the afternoon. *Pelargoniums* will now require a good deal of attention ; give them plenty of room, and tie out the shoots as they require it ; they will also require liberal supplies of water. A good batch of *Fuchsias* should be shifted, and grown on for autumn decoration. *Salvias* and other plants for autumn decoration should now be shifted, or grown on in a genial atmosphere. Towards the end of the

month some of the more hardy of *Hard-wooded plants* that have done flowering may be placed out of doors in a sheltered situation. A great number of fine kinds will now be in flower, and should be well attended to; in bright weather they should be shaded in the middle part of the day for a few hours; attend to watering. Most of the young plants shifted this spring will be growing away freely, and will require attention as to stopping, tying and training, also as to watering, air-giving, and shading.

PITS AND FRAMES.—Attend to the potting-off of all cuttings as soon as they are rooted; and put in cuttings of everything that may be useful during the autumn and winter. Prick or pot off as soon as they are large enough, seedling *Cinerarias*, *Primulas*, *Cyclamens*, &c. Pot off and shift *Balsams*, *Cockscombs*, *Globe Amaranths*, &c. Maintain a nice growing atmosphere, and keep the plants near the glass, that they may grow stiff and robust.

OUT-DOORS.—Get all vacant beds ready for planting as soon as the weather will permit; trench them to a tolerable depth, and if the soil be good, no manure will be required, unless for plants of a dwarf or delicate growth. Plant deeply, and then the roots will soon strike deeply, and the plants will need very little water. When the soil in the bed is shallow, and the plants are merely stuck beneath the surface, constant watering is necessary to keep them growing. *Verbenas*, if properly hardened off, may be planted out after the middle of the month, *Calceolarias* about the 20th, and *Pelargoniums* towards the end of the month. *Iresine* and other rather tender things are best not put out until the beginning of June. Towards the end of the month *Tender Annuals* may be planted out. Propagate spring-flowering plants. Plant out runners of *Neapolitan*, *Russian*, and *Tree Violets* on a rather shaded border, about ten inches apart. Roll and mow lawns weekly.

Sow: Mignonette, Wallflowers, Sweet William, Polyanthus, &c.

—**M. SAUL, Stourton.**

THE FAIRY APPLE AS AN ORNAMENTAL PLANT.

 WAS much pleased with the description and illustration of the Fairy Apple, which will prove a welcome addition to the dessert and for preserving, as Dr. Hogg has pointed out, and will likewise prove a charming garnish to other fruits. I have often used the Siberian Crab, the fruit of the larger thorns, and service berries, for this purpose, with admirable effect, and the Fairy Apple will almost make a fairy dessert, by setting off good things with such charming clusters of beautiful leaves and fruits. Moreover, its effect in home plantations, shrubberies, and pleasure-grounds would be charming. Our list of ornamental berry or fruit-bearing shrubs and trees is rather limited. The greater portion of the berries or fruit that are really bright and beautiful are small. I have often wondered why the largest-fruited *Crataegi* have been so sparingly planted. The common Siberian and Scarlet Crabs, highly ornamental as they are,

alike in flower, leaf, and fruit, have been comparatively ignored. I trust that the liberal use of the Fairy Apple as an ornamental tree, will bring more of all such beautiful objects into our shrubberies in its fairy train. Nothing can exceed such fruits in beauty amid the dull brown of approaching autumn.

Possibly the Lady Apple would likewise prove hardy enough for similar purposes, as well as those hybrids raised by Mr. Knight, adverted to in the FLORIST. Doubtless, the cross-breeders will again set to work to get ornamental Apples from Crab parents, both male and female. The chief points to aim at would be length and slenderness of stalk, abundance of fruit, and high and varied colouring. We have plenty of good Apples for use ; but of varieties of the fairy type for ornamental purposes, we are well nigh destitute. These might be indefinitely multiplied, to the glowing enrichment of our autumnal tints, and the great improvement of our home woods, shrubberies, and pleasure-ground scenery.—D. T. FISH, F.R.H.S.

SWEET-SCENTED FLOWERS.

No. I.—THE GARDENIA.

GIN order to grow *Gardenias* thoroughly well, there are three essential requisites, namely, great heat, abundant atmospheric moisture, and very rich soil. With these advantages, and the aid of judicious management, they may be had in bloom all the year round, the most difficult season at which to secure a supply being the month of January.

If planted out in a well-prepared bed of rich soil, *Gardenias* will continue to blossom in succession, from March until December ; but in order to secure this result, both heat and moisture must be kept up to a high standard. The temperature of the house should never be less than 70° at night, and the house may be shut up in the afternoon with abundant moisture, at a heat of from 90° to 110° ; but it must be always borne in mind that with this excessive amount of heat, there must be a very moist atmosphere.

Plants in pots will produce three crops of flowers, but it is better for the plants that they should bear but two crops, so that they may be rested. The resting period should immediately succeed the flowering season. When the plants are once started into growth, they should be kept moving onwards until the blossoms are developed, for if, during this growing period, they are at all checked or starved, they will only produce small semi-double flowers.

To obtain a supply of flowers in the month of January, the plants must be started into growth about the middle of June. When the flower-buds begin to show, which will be about August, they must be put into a cold frame, and kept as cool as the weather at the time will permit. In this position they must be kept until the beginning or middle of September, according as the season may be warm or cold. The resting state must be maintained until November, but the plant should not be subjected to a lower night temperature than 50°, or the flowers

will be small. In November, the heat should be increased, and if the plants have been and are well attended to, they will furnish a good crop of flowers through December and January.

No plant delights more than the *Gardenia* in the heat from a dung-bed, and during the summer they will grow better in a dung-bed than in any other way. They should be potted in turf peat and loam, with plenty of sand, to keep the compost in a free open condition. During their growing season, they require to be kept well fed with liquid manure, or with some other of the fertilizers now in use, such as Standen's manure, which suits them remarkably well.

It seems to be almost an impossibility to keep the mealy bug off these plants, and therefore constant attention is necessary, so as to keep down the intruders. Clarke's Compound is the best application we have made use of for killing them, but there are many others which we have not tried.

Gardenia Fortunei brings the largest blossoms, but for general purposes, I find *G. florida intermedia* the best variety, taking quantity and size of blossom both into account.—JOHN STANDISH, *Royal Nursery, Ascot.*

ROSES AND ROSE-CULTURE.

CHAPTER II.—THE STANDARD OR TREE-ROSE.

THE Standard or Tree-Rose is generally admitted to be an object of great beauty, suited alike to the smallest and the largest garden, to the border, the lawn, or the shrubbery. Some of my old gardening friends tell me that they remember Standard Roses being sold at a guinea each, and that half-a-guinea each was a very common price. Now, a better one may be purchased for eighteenpence. This is in some measure due to the increased popularity of the plant, resulting in larger sales, and partly to the improved methods of cultivation adopted in the Rose-grounds. Where tens were formerly grown we can now reckon thousands, and no one has more cause to rejoice in the change than the grower for sale.

The cultivation of the Tree-Rose is simple and inexpensive, and while few plants grow with less attention, none will repay more liberally whatever may be bestowed on them. To insure the fullest measure of success with Standard Roses, it is necessary to consider well the locality and soil in which the trees are about to be placed, and to choose the kinds accordingly. In a good Rose soil (deep loam) and a favourable situation (pure air) any kinds will thrive; but under circumstances the reverse of these, such kinds only should be planted as one's own experience or the experience of one's friends points out as likely to succeed. In heavy moist soils near the sea, or in the vicinity of large towns, where the air becomes vitiated by the constant outpouring of smoke and noxious gases, the selection should be restricted to the Damask, Alba, Hybrid China, Hybrid Perpetual, Ayrshire, and Sempervirens groups, and only the hardiest varieties of these should be attempted. Such will flourish better and yield more pleasure to the cultivator than finer kinds of more delicate organization.

The season at which rose trees are planted is not unimportant. Do not plant in winter; choose rather autumn or spring. Let a stake be placed to each tree as soon as it is set in the ground, tying with stout tar-string or bast, and covering the ground with stable manure. Throughout the first growing and flowering season the trees should be watered occasionally during dry weather.

The subject of pruning will form a separate chapter, but I may remark here that, according to my experience, the heads of Standard Roses should be well thinned out in autumn, leaving only that part of pruning which consists in shortening the shoots till spring.

A vigilant watch should be kept for the Rose Maggot, from the time the dormant eyes begin to swell. It is difficult to escape altogether from the ravages of this destructive insect, for the mischief is often done before you can detect the presence of the destroyer. Look over the plants frequently and closely, pointed pen-knife in hand, and wherever you see an eye or a young shoot struggling ineffectually to expand, open it carefully with the point of the knife, and the depredator will be there. In a somewhat more advanced state of vegetation the curl of the leaf is an unerring guide to the abode of the enemy. In addition to the rose-maggot, there are many sorts of caterpillars, occasional visitors only, which require to be removed by hand-picking; they are easily discovered, and are neither so numerous nor so constant as the former. Then there is the aphis, which is always present where roses are, and sometimes in such quantities as to become a source of serious injury. Sweep them into a gloved hand with a brush of sufficient power to remove or crush them without doing injury to the young and tender leaves of the tree. It is a good plan where they gather thickly on the ends of the young shoots, to dip the shoots in a basin of strong tobacco-water, which will kill many, and render the position untenable for the rest. The quantity of lady-birds that visited many parts of England last year, and is still hovering about, is a good omen for rose-growers, as the larvæ of this insect are great destroyers of the aphis. The number they destroy, and the celerity with which they despatch their victims, would seem incredible to anyone who had not watched their movements.

Standard roses, which are budded on the dog-rose, are liable to throw suckers from under-ground, and wild shoots from the stem will sometimes break forth above-ground. The latter should be cut off with a sharp knife, and the former eradicated by pulling them out, or driving a spud into the ground so as to sever them close to the main stem.

When the first flowering of standard roses is over, the flower-stalks should be cut off, removing as few leaves as possible in the operation. For this purpose pruning scissors are perhaps more convenient than the knife. After a short period of rest, the second or summer growth commences, and this will be materially strengthened if a little decayed manure be forked into the soil immediately that the first flowering is over. In performing this operation, be careful

not to disturb the soil more than three inches deep, as the most active roots probably lie about that distance from the surface. Spread the manure over the surface about an inch in thickness, and prick it in carefully with a light fork. The summer roses have now nothing to do but to grow, but the autumnals have to grow and flower. In either case, if a single shoot pushes with unusual vigour, it is well to pinch out the growing point, or the surrounding shoots will be deprived of their just share of nourishment, and will grow weakly, and thus the head of the tree will become ill-balanced or mis-shapen.

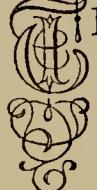
Many sorts of roses, of which the Géant des Batailles and its race are the most common examples, are subject to mildew. The best remedy for this is a good powdering of sulphur, put on when the leaves are wet with rain or dew.—
WILLIAM PAUL, *Paul's Nurseries, Waltham Cross, N.*

LESCHENAULTIA BILOBA MAJOR.

 HIS plant, if well cultivated, has few rivals among greenhouse plants, the colour of its flowers being of the most beautiful blue. A young plant taken in hand now, if well rooted, may be shifted, say from a 5-in. (48) to a 6-in. (32) pot. Fibrous peat of good quality must be used to grow the plant successfully. This material should be broken up into moderately small pieces, and a sufficient quantity of silver sand added to cause water to pass through freely; the whole must be well mixed together. Provide ample drainage, and over this place some of the rougher parts of the peat to keep it from becoming choked. In potting, press the soil down firmly. Regulate the shoots by tying the strongest of them to small stakes, so as to form the foundation of the future specimen. Place the plant in a greenhouse, in a light, airy situation near the glass, where air can be given, but where it may not be exposed to currents of cold air. Attend carefully to watering, and keep the shoots properly tied out.

By the middle of June the plant will require another shift, the treatment above recommended being otherwise continued in every particular, always; however, bearing in mind that this plant requires to be grown near the glass in order to get stiff, short-jointed wood. By the beginning or middle of May the flowers will commence to open, and the plant will bloom on for four or five weeks. After blooming, as soon as new growth begins to push, give another shift, and treat as before. Cuttings of the half-ripened wood strike freely, if placed under a bell-glass, and put in a little bottom heat.—H. CHILMAN, *Somerley Gardens.*

LADY'S SLIPPERS.—CHAPTER III.

 HE beautiful *Cypripedium Lowii*, of which a woodcut figure is annexed, was introduced from Borneo by Hugh Low, Esq., to the Clapton Nursery, about 1846, and was described in 1847 by Dr. Lindley, from specimens which bloomed in the garden of A. Kenrich, Esq., of West Bromwich. In its native habitats it was found growing on high trees in thick jungle, and



bearing its flowers in April and May. Our figure was prepared from specimens which bloomed in the nursery of Messrs. Veitch and Sons last February.

Cypripedium Lowii is a stove herb, with leathery, oblong-ligulate, obtuse, emarginate, yellowish-green leaves. The scape is downy, and of a dull purple,

and bears usually three or four flowers, though it would appear from Dr. Lindley's description that as many as eight are sometimes produced. The dorsal sepal is downy outside, dull pale green within; the petals are spatulate, twice as long as the lip, green, marked with distinct brown purple spots on the lower half, wholly dull purple above, the margin ciliated; and the lip is smooth and shining, of a dull brown, with a purplish tinge, bluntly oblong, notched in front, and having two bluntnish ascending lobes, and behind each a triangular tooth. The sterile stamen is obovate, with a triangular tooth in the apical sinus, and a central horn at the opposite end, both the horn and the edge bristling with purple hairs.

This species has been introduced in large quantities during the last few years; but it is somewhat difficult to establish, and consequently will never become over-abundant. Nor is it, indeed, a matter of wonder that so many of these plants refuse to grow, if we take into consideration the great length of the journey, and the excessive heat of the latitudes through which they have to travel, for as they have no pseudobulbs to act as storehouses of nourishment, the roots and leaves are in most instances dried up to such an extent, that very little vitality remains in them by the time they reach this country. Hence, on opening the boxes, death is too often found to reign supreme, though occasionally, to the great delight of lovers of this beautiful species, a consignment arrives in excellent condition.

When first taken in hand, the plants should be placed in moderate heat, and in a moist atmosphere, very little water being given, and great care being taken that none is allowed to remain in the heart of the plant. After they are established, a liberal supply of water may be given, both from watering-pot and syringe. The temperature of the East Indian house will be necessary. The soil should be fibrous peat and sphagnum moss, in equal proportions, adding a little silver-sand, and some small pieces of charcoal. It is of the utmost importance always to drain well.—BENJAMIN S. WILLIAMS, *Victoria Nursery, Holloway.*

THE AMATEUR'S PAGE.

ON continuing my remarks on the *Chrysanthemum* from p. 39, it now becomes necessary to make some observations on the Soil, which, in the course of my experience, I have found to be a very puzzling affair to amateur cultivators. Now, for those who cannot find a supply from their own resources, it is far best to state their wants to a respectable nurseryman, who will furnish them, at a reasonable rate, with the necessary composts; but many will have the means of getting together heaps of turf-loam, leaf-mould, sand, road-scrapings, and rotten manure, and a stock of these should be kept on hand in separate heaps, and mixed as occasion requires.

In the early stages of the cultivation of the *Chrysanthemum* there is not so much necessity to be particular about the soil. The first great requisite is a good stock of roots, and to encourage this there should be perfect drainage, and

a good proportion of sand in the compost, which may consist of one-third friable loam, one-third leaf-mould, or very rotten manure, and one-third sand ; this, well mixed together, will answer well for the first shifting.

Many persons who have only a slight amount of experience in horticulture, imagine that gardeners owe a great part of their success to the use of stimulating manures, and although this may be true to a certain extent, it is a very dangerous doctrine in the amateur's hands ; for gardeners, as a rule, make it a particular study to learn the conditions under which stimulation may safely be applied, whilst inexperienced persons, seizing hold of the great idea that stimulating composts are the necessary means for producing great results, make too liberal a use of the strongest they can find, and thus defeat their own ends. It is of no use to apply stimulating food until there are mouths to feed on it, that is, until the pots are well filled with roots, and up to that time the plants ought to find sufficient in the compost used to maintain them in a healthy state of growth. Hence when the plants are at the last shifted into the 8-in. pots for blooming, a less amount of sand and more thoroughly rotten manure should enter into the compost, and to it may also be added about one-eighth part of *the parings from horses' hoofs*, which may readily be obtained from the blacksmith's shoeing-shed. This is a most powerfully stimulating manure, and contains a large per-cent of ammonia, which is given out so slowly that there is no fear of the plants being over-stimulated and gorged with food, as is frequently the case when softer and more soluble manures are used too liberally.

This compost, then, ought to keep up a free and healthy state of growth until September, without the application of anything stronger than plain soft water. By that time the pots will be full of roots, and the plants throwing up side branches for bloom ; and at this stage some extra stimulus, in the shape of liquid manure, should be applied, at least twice a week. The clear drainings from a large heap of manure make a very good liquid for the purpose, or it may be made by putting sheep-droppings, horse-droppings, and cow-manure into a good sized tub, filling it up with water, and stirring it round frequently, using only the clear liquid. Failing this, the amateur might use some of the soluble manures of which there are so many advertised, and one of the best for his purpose would be Standen's Gardener's and Amateur's Friend. At the final shift, which generally takes place in the hottest weather, the plants are to be again placed on a level bed of coal-ashes, a foot or so apart, and it is desirable (although not absolutely necessary) to fill up the intervening spaces with finely-sifted coal ashes, which will keep the roots cool, and save much time in watering.

When the flowers commence to expand, the plants should be moved under cover ; they do not require artificial heat, but the shelter of glass is necessary to the attainment of their greatest perfection. If glass shelter is not at command, a temporary awning, consisting of a slight framework in the shape of a small span-roof, and covered with Russian mats, may be erected over them, but the mats should be removed in the day, and invariably thrown over at night.

After flowering, cut down the stems, plunge the pots in any sheltered corner, close together, and cover them up with straw and mats in frosty weather. These old plants should furnish very good cuttings in April, at which time they should be taken off about 3 in. long, inserted three in a 3-in. pot, potted off singly when rooted, and again submitted to the foregoing routine of culture. The old plants may be divided, and planted in the open borders.

The following is a short list of a few that will not disappoint the grower, although some are very old sorts:—Alma, Antonelli, Beauty, Bella Donna, Boadicea, Beverley, Cardinal Wiseman, Dr. Rosas, Duchess of Buckingham, Edwin Landseer, Empress of India, Eve, Golden Beverley, Golden Hermine, Golden Queen of England, Hermine, Iona, Julie Lagravère, Leda, Little Harry, Mrs. Haliburton, Celestial, Sam Slick, Mrs. Dix, Venus, White Christine.—Fleur de Marie, Margaret.—Adonis, Aureole, Aurore Boreale, Berrol, Bijou d'Horticulture, Bob, Drin Drin, Graziella, Madame Eugène Domage, Modèle, Salamon.—Astrea, Calliope, Cedo Nulli, Golden Cedo Nulli, Lilac Cedo Nulli.—Rose Trevenna, White Trevenna. These are all proved and well-known sorts, and may safely be depended upon.—JOHN COX, *Redleaf*.

THE CYCLAMEN.

SOME of the new forms of *Cyclamen persicum* that have appeared show considerable progress, both in the direction of depth of colour, and of stoutness and width in the floral segments. The marked advance made in the former direction is well shown in *C. persicum kermesinum*, a variety with a rich hue of carmine-rose on the flowers, and in the latter, in *C. persicum giganteum*, to both which the Floral Committee have recently awarded a First-Class Certificate. The former novelty was shown by Mr. Welch, of Hillingdon, the latter by Mr. Edmonds, of Hayes, who with Mr. Stevens, of Ealing, have both brought out very fine strains of the *Cyclamen*, showing much variation in the particular hues of the deep-coloured flowers.

I fancy that, as a general rule, the *Cyclamen* is not well managed, neither is it sufficiently recognized, as it should be, as a flower to bloom in November, December, and January, instead of in April. There is no doubt but that the *Cyclamen* has been, and still is, sadly mismanaged. The old barbarous practice of systematic neglect, misnamed the resting process, to which these beautiful plants are often subjected, is altogether wrong, and should be abolished. Death, or imperfect development, as surely follows on the old plan as a free development and numerous blossoms follow the more sensible method.

Seed should be sown as soon as ripe—generally in July—in pots of suitable soil, and placed in an old cucumber or melon frame, with a temperature of about 65° or thereabouts. The first leaf will appear in about six weeks, and when about one inch in length, the plants should be transplanted into pans, and kept in the pit, shading them from the glaring sun by the use of some material that will not exclude too much light, while it effectually screens them.

As soon as frost sets in, the pans should be removed to the top shelf of a conservatory, where the temperature will not get below 45°. During the winter the plants will not make much growth, and in April they should be potted singly into 60-pots, and put into a frame with a little bottom-heat, and then in May removed into a cold frame facing the south-east, kept close for a few days, but eventually fully exposed during the day-time. When in the cold frame the plants should not be too much crowded ; air should be allowed free circulation, to prevent the plants being drawn.

During June, July, August, and September, the plants should be sprinkled over-head at least once a day in hot, sunny weather, and watered about the soil also. It has been assumed that, at the proper time, the plants had been shifted into the blooming (6-in.) pots. This should be done about July or August, according to the strength of the plants. In regard, however, to watering over-head, one of our best amateur cultivators remarks : "I caution growers never to close up the lights for the night until the plants are quite dry, otherwise you will have them lanky, which must of all things be avoided."

By the middle of October some of the plants should be in bloom, and be removed to the conservatory, and a succession of flowers can be had without much difficulty to the end of April. The amateur cultivator already alluded to, who though not known to fame, has this season flowered a splendid batch of seedlings, thus gives some valuable cultural hints :—"The soil best suited, in all stages of the *Cyclamen*, is one composed of two-fifths coarse leaf-mould ; the same quantity of very light, soft, yellow loam ; one-fifth dry cow-dung, and sufficient fine white sand to prevent running together. The dry cow-dung should be collected in fine weather, and it would be advisable, after rubbing it small, to pour some nearly boiling water over it, to kill all seeds, which are very troublesome if not destroyed in this way. The leaf-mould should also be well wetted, mixed with cow-dung and sand ; the loam should be ground down quite fine in a dry state, mixed with other ingredients, and you will then have the very best compost it is possible to make, to grow the *Cyclamen* in."

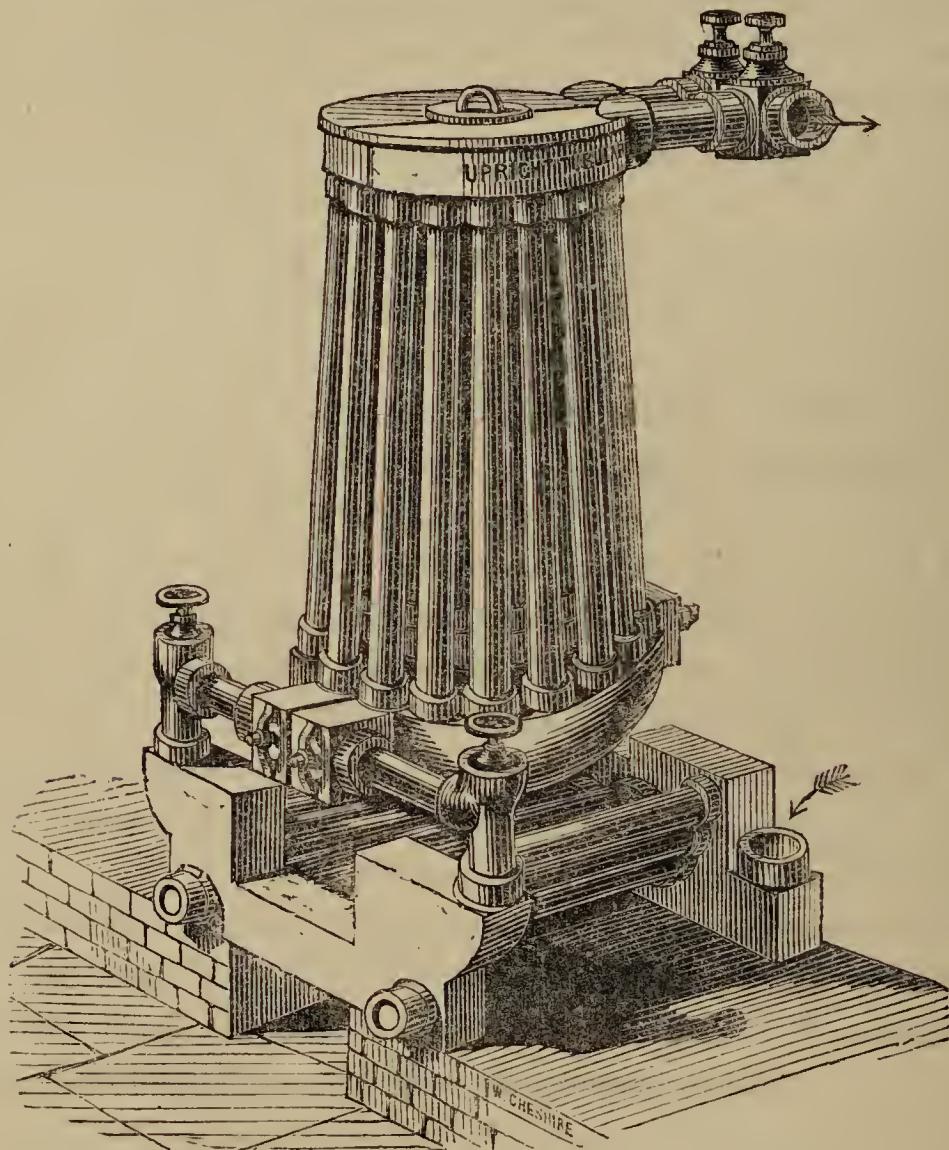
"The crown is almost always seen above the soil, but this should never be so, for the simple reason that the roots in this case will only grow from the lowest portion of it, whereas if buried they will do so from all parts alike ; and this must be a very great advantage to so gross a feeder as this plant really is. When the plants are put into their blooming-pots, I always place a handful of crocks at the bottom, and on the top of them some small pieces of dry cow-dung, which is without doubt one of the secrets of success in the cultivation of this gem of the winter season."

The simple secret of success with the *Cyclamen*, provided there be good management in all its stages of growth, is, never to allow it entire rest, but always to keep the plants growing, however slowly, and not, as is the usual custom, to allow them to become dry during the summer, which is often synonymous

with systematic neglect and partial decay, if not entire death. Only those who have seen the *Cyclamen* well done can rightly appreciate its worth as a winter-blooming plant. Such a house of *Cyclamens* as Mr. Wiggins can show during the spring of the year would convert the most sceptical to a belief in its valuable qualities ; and those who can so rightly appreciate it are increasing in numbers day by day.—R. D.

BOILER IMPROVEMENTS.

DOUR present object is not to discuss the merits of rival boilers, tubulars or saddles, wrought or cast, but to direct attention to one or two features we have noted in what is called the Patent Duplex Compensating Boiler of the Messrs. Weeks and Co., by whose courtesy we are enabled to introduce



the annexed explanatory woodcut. An examination of the figure will show that by merely turning the valves this boiler can at any time be separated into two distinct parts or sections, the one of which may be left working, while the other is taken away. The advantage of this is sufficiently obvious. When boilers fail it is generally through the occurrence of a flaw at a single point, but if the part containing the defective portion could be moved away for repair, as it can in this case, without interrupting the action of the other part or section, the gardener

would be at once relieved from the anxiety which attends on the giving out of a boiler during the winter season, or while forcing is in full operation. Another meritorious point in the boiler now before us is, that it can be emptied for the removal of sediment—and sediment in a boiler is, at least, a source of great annoyance, often, indeed, of serious damage—without the labour of emptying the whole apparatus. By means of valves the water in the pipes can be shut back from the boiler, and by means of openings provided for the purpose, the boiler itself can be drained to the very dregs.

To point out these contrivances is to show their utility, which is self-evident. The wonder is that so many forms of boilers should have come into use without the introduction of these or some similar advantages.—T. M.

NOVELTIES, ETC., AT FLOWER SHOWS.

S in the cases of many other subjects, a large-flowered section of *Cyclamen persicum* has put in an appearance, and there is no knowing to what size the flowers may eventually be brought. At the meeting of the Royal Horticultural Society held on the 6th of April, a First-Class Certificate was awarded to Mr. Edmonds, Hayes, for such an one, *Cyclamen persicum giganteum*, having bold and stout bright rosy-purple flowers of unwonted size; this fine flower, combining the qualities of large size and high colour, may be said to consummate the splendid development of the Cyclamen witnessed this spring. In *Azalea François Devos*, a fine addition is made to the semi-double greenhouse varieties, so valuable for cut purposes, as the blossoms are less fragile than those of the single flowers; the colour is of a glowing crimson, the plant very free-blooming, and of capital habit; it was exhibited both by Messrs. Cutbush and Son, Highgate, and Messrs. Standish and Co., Ascot, and was awarded a First-Class Certificate. The same award was made to a very pretty new hybrid Perpetual Rose, named *Mdlle. Eugénie Verdier*, having full and finely-cupped blush flowers, the centre suffused with pink, said to be one of the very best of the new Roses being sent out; this was exhibited by Messrs. Paul and Son. A similar award was made to a curious Primrose from Abyssinia, named *Primula Contii*, but which proves to be the *P. Boveana*, and is probably only a variety of *P. verticillata*, identical with *P. verticillata simensis*. It is a greenhouse perennial, of free habit, with white powdered foliage, and pale-yellow scented flowers, produced in whorls on the erect scape. This was exhibited by Messrs. Veitch and Sons, and will, in all probability, become very useful for hybridizing.

Asters in bloom during the first week in April are certainly uncommon, but yet Messrs. Standish and Co. had a group of nicely-flowered plants in pots of the "dwarf bouquet" strain, the seed of which had been sown in August last. By sowing in June another season, they hope to be able to get them into bloom as early as Christmas. Quite as uncommon were some *Standard Pot Roses*, shown by Messrs. Lane and Son, of Great Berkhamstead, nicely-grown plants on stems

2½ ft. high, and bearing fine heads of bloom. Messrs. Standish and Co. had in a pot a grand tree of the highly-coloured *Rose Duke of Edinburgh*, with a vigorous head, bearing nearly thirty buds and flowers.

At the meeting held on April 20, *Pansies* were a somewhat unusual feature. First-Class Certificates were accorded to *Golden Bedder*, a bedding variety producing large golden yellow self flowers, of fine substance, and having a dark blotch, exhibited by Messrs. E. G. Henderson and Son; to *Sunshine*, a showy fancy variety, having a golden ground-colour and broad margin of orange-brown; and to *Mrs. Shirley Hibberd*, of a rosy-lilac hue, both novel in character, but lacking the qualities of form, substance, and marking usually looked for in the Pansy. Possibly the Committee gave these awards as to bedding kinds, but it is difficult indeed to judge of the value of Pansies as bedders when only cut blooms are shown. The two latter came from Mr. Henry Hooper, Bath. Mr. Turner, Slough, received a First-Class Certificate for his grand new grey-edged *Auricula*, *Colonel Champneys*, which was admirably portrayed by Mr. Andrews in our volume for 1868, and which was now shown much finer than it had hitherto been seen. There were also collections of Auriculas, both show and Alpine varieties, the best of which came from Mr. Turner, who, as usual, had some very nice flowers. Mr. Williams, Holloway, had a First-Class Certificate for *Gloxinia Scarlet Gem*, an erect-flowered sort, and the brightest in colour which has yet been seen,—a vivid carmine-scarlet, with bluish throat. Mr. Noble, Bagshot, had a group of flowering plants of his two fine new early varieties of blooming *Clematis*, *Miss Bateman*, and *Lady Londesborough*, the former white, slightly tinted with lavender; the latter pale violet, both well adapted for conservatory decoration in the spring months.

There was a competition for prizes with six varieties of *Bedding Pansies*, shown in boxes 12 in. square, the boxes filled with 10 or 12 plants of one variety, put closely together. Mr. Henry Hooper was the only exhibitor. The three best were *Sunshine*, just described, *Sunset*, self yellow, and *The Bride*, self white; the other three were fancy kinds, very unpromising as bedders.

Mr. Smith, Wilton Road, Salisbury, brought a box of flowering plants of his *Viola cornuta*, var. *Perfection*, a fine and effective bedding variety. Whether or not identical with that sent out from Rotherfield Park, one thing is certain, that, as to habit and freedom of blooming, this Viola comes nearer to a good ideal bedding Pansy than anything I have yet seen.—R. D.

ON PINKS: NORTHERN v. SOUTHERN.

HE list of Pinks from Mr. Turner (p. 72) reminds me of bygone days, when nearly every Northern town had a pink show, and some of them even three or more. Sheffield has, I believe, kept up the fancy to the present time, and still maintains three shows. In other places this lovely little gem has been for many years neglected. We, however, intend to revive the fancy here, by having an Exhibition during the present summer.

Our taste here in the North is at variance with that of the Southern growers, in regard to the colour of the lacing and centre. Here both centre and lacing must be of one shade, whether red or purple; while many of the Southern varieties have a dark centre, with pale rosy, or rosy-purple lacing. The Southern flowers are, moreover, often fuller than agrees with the canons of our Northern florists; for here we require the centre or moon to be clearly seen, and the darker the colour the better. *Defiance* (Partington) is considered a model in the red class, and *Victory* (Norris) in the class of purples. It is true, we have two fine pinks which are much admired, both of them Southern varieties, namely, *John Ball* and *Device*,—but whether those in the list kindly forwarded by Mr. Turner will suit our Northern fancy I cannot say. In Scotland they admire those varieties most which have a white fringe round the edge, while here the colour must come to the edge, and there must be no fringe. I am not so very particular, I admit, for I admire all if good, and regret that this charming and fragrant flower should have been so much neglected. I should indeed be glad to see a revival of its culture.

The Northern amateurs have always admired the black and white, or plain pinks, as they are termed in some localities, and these have always figured in the pans and classes with the reds and the purples. The pans of six usually have two in each class, and the black and white run the same length as the others in the classes. In Scotland these are not tolerated at all, but I must say that I admire them, the black centre with the pure white they generally possess, forming such a thoroughly good contrast.

I will close this note with a list of six varieties of the best in each class:—

<i>Purple-Laced Pinks.</i>	<i>Red-Laced Pinks.</i>	<i>Black and White Pinks.</i>
Emily.	Defiance.	Miss Jessop.
Victory (Norris).	Bertha.	Beauty of Harwood.
Mary (Auckland).	John Ball.	Mrs. Frost.
Lord Palmerston.	Vesta.	Mrs. Bradley.
Huntsman.	Mrs. Enfield.	Beauty of Home.
Mango.	Anna Maria.	Mary (Kay).

—JOHN WALKER, *Winton, Manchester.*

WATERING SEEDS AND PLANTS.

HE season has arrived when we are generally busy sowing the different varieties of seeds, and as watering will sometimes be necessary to assist the germination of some particular sorts, especially the very minute ones, if the weather proves dry after they are sown, as well as to assist the growth of the plants after they are up, due precaution should be observed as to the time of performing the operation. As a safe rule, neither seeds nor plants should be watered except when the sun has gone down; because its rays act suddenly upon the moistened plants, and sometimes destroy their leaves, as if by frost. Upon moistened ground, where the seeds have not yet appeared, the effect of watering in sunshine would be to draw forth the moisture from the place watered, and

make it drier and harder than before. Watering in sunshine often causes the leaves to blister, but when rain is falling naturally, the clouds from which it descends act as a screen between the earth and the rays of the sun. This shows that watering, which is a substitute for natural rain, should not be performed when the sun is shining.

When summer rain is falling the air becomes moist, and the sun, while its warmth is still acting, does not counteract by its fiery rays the good effects of that moisture, but the soil is softened and disposed to the entrance of the genial element. Everything then favours the growth of the plant. But this is not so when artificial watering takes place. The air is then dry, and the sun draws away, early in the morning, the moisture which the watering imparted the evening before. The most beneficial watering is that which is applied before rainy weather, because, in such case, its good effects are not counteracted by the rays of the sun.

The best water for using in a garden is that which contains an abundance of fertilizing substances, such as that from cesspools, ponds, &c. Rain water is also good; when spring or well water alone can be obtained, it should be exposed for some time to the sun and air before it is used.—EDWARD BENNETT, *Envile*.

GARDEN GOSSIP.

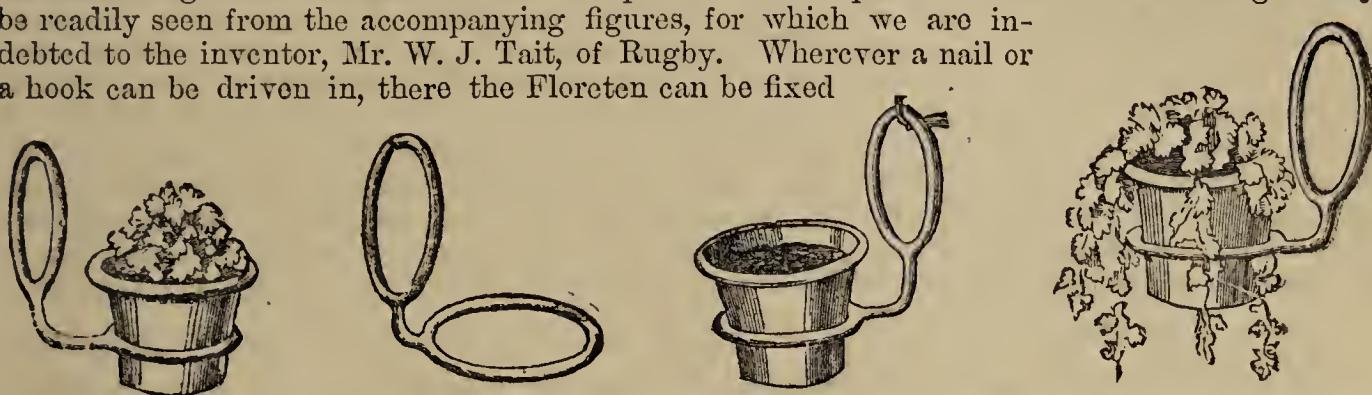
HI SWICK GARDEN is not, after all, to be abandoned by the Royal Horticultural Society. The representations of the Press, and of various friends of the Society, have led to a reconsideration of the position of affairs, with the result that the Garden is to be reduced, not given up. The arboretum, wilderness, and orchard are to be cut off, and about ten acres, including the council-room, the large conservatory, the fruit-room, and the various glass-houses, retained as an experimental garden. The old orchard necessarily goes, but young trees have been secured on dwarf stocks, so that the fruit collection will be kept in an efficient state. A lease of the ten acres will be granted for fifty years, at a rental of about £100 a year, through the liberality of the Duke of Devonshire, and it is estimated that by these new arrangements the Society will be able to reduce its expenditure by £1,000 a year, without lessening its utility, for the portion retained will be amply sufficient for all useful purposes.

— **T**HE Sulphur Distributor of Messrs. Adams and Grant is one of the most simple contrivances for the purpose that can be imagined, yet it appears to be a most effectual one. It consists of a little box with two glass sides, 5 in. long by 3 in. wide, and a little more than 1 in. in depth, into which the sulphur is put. On one side there is a small aperture for the sulphur to pass out, and on the opposite another, which is fitted on to the nozzle of a common household bellows. By blowing the bellows the sulphur is made to issue through the small aperture on the opposite side like fine dust, in a most effectual manner. It is the simplest and best sulphur distributor we have yet seen.

— **T**HE gardeners of Scotland have recently presented a *Testimonial to Mr. Methven*. It consists of a large and magnificently wrought silver epergne, and a massive silver salver, bearing the following inscription:—"Presented to Mr. Thomas Methven, Nurseryman, Edinburgh, March 29, 1870, by a few of his horticultural and arboricultural friends, as a token of their esteem for him personally, and of the sense they entertain of the many services that he has rendered to cultural science."

— **T**HE Floreten, or Flower-pot holder, is a very simple and useful contrivance, adapted for window or wall-gardening. It consists of two rings of

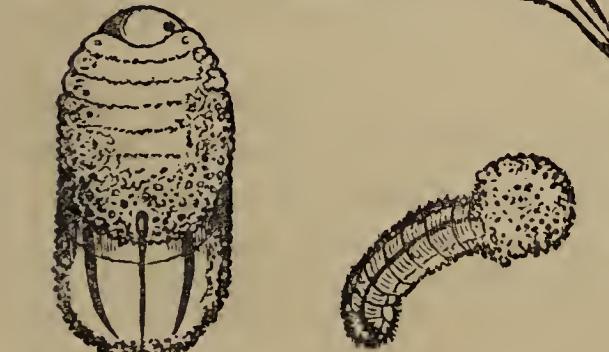
stout wire, with a short connecting-piece bent at right angles, and is intended for furnishing blank vertical surfaces with pots filled with plants. The mode of using it may be readily seen from the accompanying figures, for which we are indebted to the inventor, Mr. W. J. Tait, of Rugby. Wherever a nail or a hook can be driven in, there the Floreten can be fixed



up, and a vase or flower-pot steadily and securely hung ; by using an inverted bell-glass instead of a flower-pot, an aquarium may be formed ; and again, by fixing two or more on the same level, and laying a board on the horizontal part, a shelf of any desired length may be extemporized. For window-gardening, for covering bare dead walls with living plants, or for furnishing many a nook and corner in the conservatory of the villa garden, this little contrivance will be found to be of much utility. The odd-looking name is, we are told, derived from *flores*, and *teneo* to hold.

— THE accompanying engraving, from the *Gardeners' Chronicle*, represents a new *Scale Insect* which attacks Camellias, to which Prof. Westwood proposes to give the name of *Coccus flocciferus*. My

attention, he writes, was directed in the early part of last July to certain white objects upon the leaves and stem of a Camellia. They were oblong, generally curved, about one-third of an inch long, and had all the appearance of the droppings of some small bird, one end being thickened and rounded. They were found to consist of the waxy, cotton-like secretion of an undescribed species of *Coccus*. The elongated floccose mass was convex on its upper surface, having a slight depression running along the middle of the back, and also a fainter one along each side ; it had also the appearance of transverse but curved impressions, so that it might almost be taken for the body of a footless caterpillar. The female was broadly ovate and depressed, of a pale greyish buff colour, the hinder part of the body having a slight fleshy tinge, the head tolerably distinct, without any appearance of antennæ or legs visible from above. The hind part of the body was covered with minute particles of exudation, giving it the appearance of having been powdered with minute grains of moist sugar. The floccose mass enclosed numerous eggs. The insect has since been met with also on Camellias in the Dutch gardens.



— MR. HOWARD recommends *Eupatorium gracile odoratum* as being very useful for bouquets, coat flowers, and general decoration in winter. It does well in a warm greenhouse ; and before the first lot of flowers are open there is a second lot showing on the same plant. Strike in February and March ; pot in any ordinary good soil, and plant out-of-doors in June. Take up early in September, and with the ordinary care of a Verbena it may be had in flower all the year round.

— THE large plant of *Vanilla* at Osberton is growing in a mixture of peat and charcoal, in a successional Pine-pit, the temperature of which rarely ex-

ceeds 50° in winter, and is frequently lower, the summer temperature varying from 55° to 65°, and upwards. The plant is in the best possible health, growing vigorously, and is heavily laden with fruit. The plant covers the entire back of the pit, 40 ft. in length, and about 3 ft. in width. In June, 1868, a young plant was planted in the fruiting Pine-house, in a mixture of peat, charcoal, and mortar rubbish, the temperature of this house ranging from 65° to 85°. It grew amazingly, and this season has borne 12 pods of fruit. A second plant was planted in quite a cool house, one used for bringing forward roses, the temperature being kept but little higher than that of a greenhouse; this plant has not made much progress, but has six pods of fruit. Mr. Bennett notes that he is satisfied the Vanilla will grow and fruit in a comparatively low temperature, the only thing required is to know how to fertilize the stigma, an operation which, though simple, requires great care and some skill.

— ON the back wall of a conservatory at Thorpe Perrow is growing a grand specimen of *Luculia gratissima*. It consists of two plants from the cutting-pot, put in with the intention of removing the weaker, but both grew away so rapidly that they were allowed to remain. The plants soon covered a back wall 30 ft. long by 8 ft. in height, and then took to the rafters, seven of which 15 ft. long have been covered, and they are now sprawling about in a small half-circular dome. Recently three more rafters have been given to them. The plants commence to bloom in October, and last to the end of February. The number of heads of bloom this season has been 700, or thereabouts, many of them measuring 8 in. across. This is grand for a winter-blooming conservatory plant, and the perfume, too, is delicious, equal to that of many Orchids. In March the plant is spurred in just as Vines are pruned, without retaining a leaf. It breaks in a very short time, and the shoots are thinned two or three times during the summer to allow the leaves room to develop themselves.

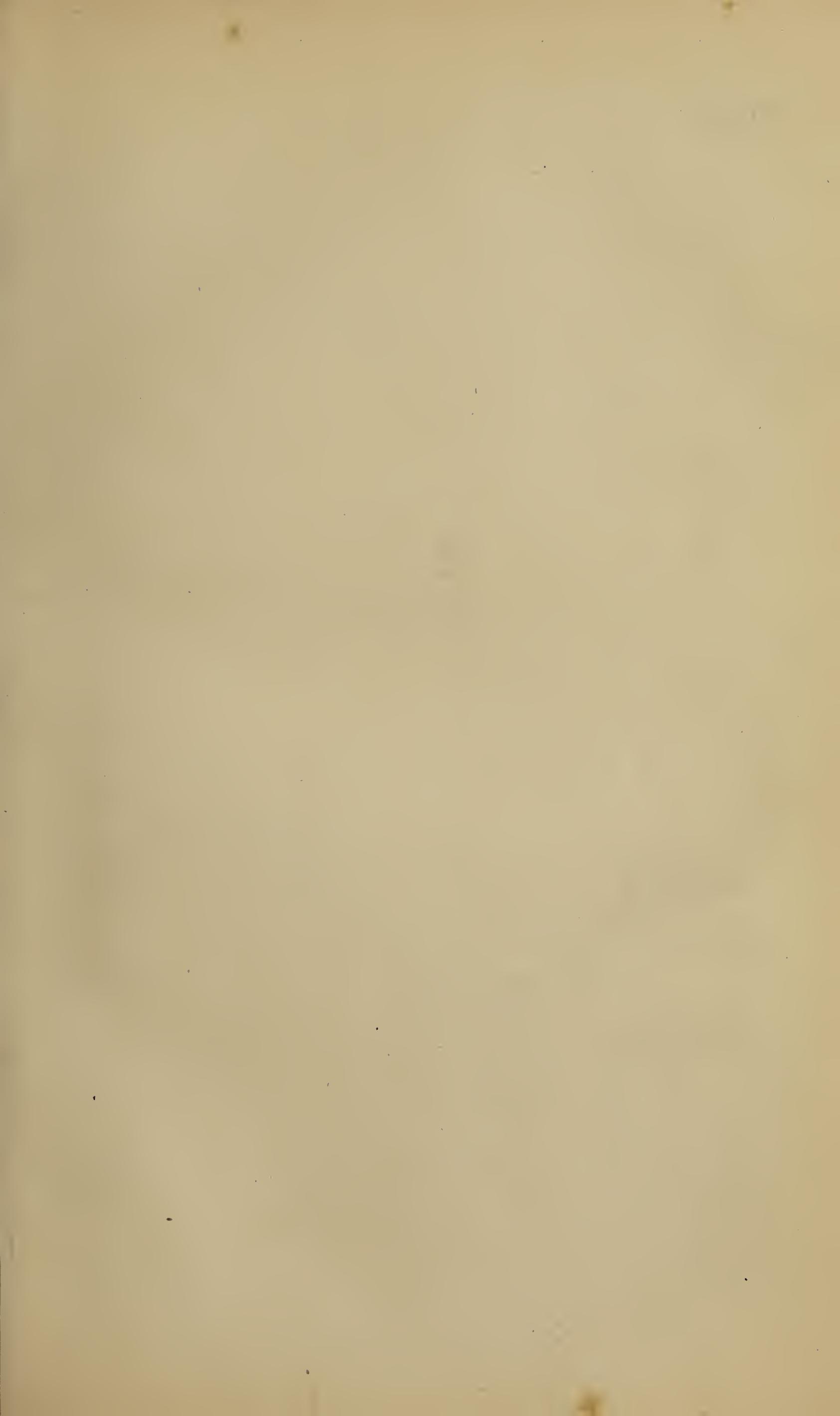
— THE Thermo-plastic Putty, manufactured by Sir W. Rose and Co., has been used in the renewal of the roof at King's Cross Station. This putty, it is said, is peculiarly adapted for fixing the glass in roofs of railway stations, greenhouses, and other buildings where plate-glass and iron or wood sash-bars are used. It hardens in a few hours after being used, but will, when exposed to solar heat, sufficient to cause expansion of the glass and metal, become plastic, and on cooling, again returns to its original firmness, thus preventing the loss occasioned by fractures and leakage.

— ONE of the features at the Oxford Show of the Royal Horticultural Society is to be a class for *Antirrhinums in Pots*. This, Mr. Bennett observes, is a step in the right direction, for the habit of the plant is well adapted for pot-culture. Last spring he potted a few seedlings in 12-inch pots, and plunged them into the open borders; they were once stopped or pinched in only, and they made splendid specimens, and continued in flower for some months.

— THE Duke of Buccleuch has introduced an *Evergreen Screen* in lieu of the ordinary blank wall so commonly seen in front of town mansions. The plan adopted, says the *Pall Mall Gazette*, is simple and effective:—A series of iron posts, some 8 ft. or 10 ft. high, and in double line, each line some 6 in. distant from its fellow, are connected together by numerous thick wires, and over the trellis-work ivy is being trained. Well watched and watered, the plants will doubtless thrive, and form a cheerful-looking leafy screen.

Obituary.

— M. VICTOR VAN DEN HECKE DE LEMBEKE died at Ghent on January 24, after an illness, which manifested itself last spring, immediately after his return from the Russian Floralia. M. Van den Hecke was president of the *Société Royale d'Agriculture et de Botanique de Gand*, and also of the *Société Pomologique*; vice-president of the Federation of the Belgian Horticultural Societies, &c.; and one of the most distinguished Belgian amateurs of horticulture. The Belgian Government had for many years confided to him the Presidency of the Conseil de Surveillance of the State School of Horticulture, a function, observes M. Van Houtte, which he filled up to his last hour with as much benevolence and amenity as zeal. His loss will be much felt in Belgium. His fine collection of plants is announced for sale by auction on the 2nd of May.





J. N. Fitch, imp.

Clematis Princess Mary.

CLEMATIS PRINCESS MARY.

WITH AN ILLUSTRATION.

HE now submit to our readers a picture of a charming new *Clematis*, of the florida race, descended from *Clematis Standishii*, and one of a fine batch recently obtained by Mr. C. Noble, of Sunningdale. It is the most distinct break we have yet seen from the violets, grays, and whites which are the ordinary colours of the large-flowered forms of *Clematis*; and its very pleasing shade of rosy-pink will render it a most welcome acquisition.

The niche which this novelty is adapted to fill, is that of an early-blooming hardy or conservatory climber. It is of free but slender growth, with quite the habit of *C. Standishii*, and like that plant, is adapted either for pot-culture or for planting out in the conservatory, or against a conservative wall. As a spring exhibition plant, blooming freely about the month of May, this, with others of its race, is to be highly recommended. With the double white *C. Fortunei*, the double blue *C. John G. Veitch*, and the hybrids Mr. Noble has introduced to public notice, e.g., *Miss Bateman*, *Albert Victor*, *Lady Londesborough*, &c., a very charming group might be made up. Though the exact parentage of the individual seedlings has not been preserved, we learn from Mr. Noble that *C. Standishii*, *Fortunei*, and *Sophia flore-pleno*, with *C. lanuginosa* (the two former principally the seed-bearers), were the parents of his hybrids,—a race of free-blooming, early-flowering varieties, which, possessing vigour of growth, combine also fine form and unwonted substance of petal, with some exquisite tints of colour. We learn, moreover, that the plants are perfectly hardy.—T. M.

FRUIT-THINNING.

PERHAPS no practice is so much neglected as that of the careful thinning of fruit. In many gardens it seldom reaches below Peaches, Nectarines, Apricots, or perhaps Plums; and even these are thinned, if at all, in a haphazard way. All fruits below these in the scale of importance are left crowded together, or are suffered to thin themselves, as the case may be. Under such circumstances, it is hardly to be wondered at that we so often see trees either laden beyond their strength, borne down beneath a heavy load of puny fruit, or without a crop at all. These results but too often represent two opposite sides of the same evil. Barrenness is the rebound from over-cropping. The trees swiftly revenge ill-treatment, either in the current or the preceding year. This is so well known, so generally admitted, that it has become quite common among fruit-growers to talk of alternate crops of this or that fruit. The season gives us such light weights a great deal too often, without our help and in spite of our hindrances; and it is a serious blunder, if not a crime, that we should add to the number of the years of scarcity by our reckless or thoughtless modes of cropping. I was in

a garden last year where the plum trees were so laden that the branches were propped up with clothes' forks. There were cordons of fruit with a vengeance. I remonstrated upon the barbarous weight of the load, and was met by the triumphant answer :—“ Why, these trees have not yielded a crop this ten years, and I must have been a fool not to have taken all I could when I could get them.” I asked the grower when he expected a second. He looked puzzled for a moment, and finally answered “ Never,” and I believe he was right. Let him that is without fault among us, in regard to this matter, throw the first stone at this man's folly.

Over-cropping is the greatest evil of the present day in fruit-growing. It wrecks regularity of supply, lowers the quality of the fruit, and prematurely exhausts the strength of the trees. Born of greed and ignorance, it has been upheld by custom, and supported by undiscriminating practice, until it has become well nigh universal. I therefore wish to raise as loudly as possible, on behalf of the trees, the cry they have all along been mutely urging, “ Thin, thin our fruit!” Alternate cropping is but one form of that cry ; showers of dropping young fruit another ; deformed fruit a third ; small, prematurely-ripened fruit a fourth ; weakness and death overtaking the trees in their youth a fifth ; while many more mute expressions of opinion by the trees themselves upon this point might be noted by the careful observer. I believe it might be shown that a crop of suckers springing up from the root-stocks of trees is but another form of protest against over-cropping. In effect the tree says :—“ You will burden all my fruit-bearing wood unmercifully. You leave no reserve of strength to come back as a fresh stream of force, a new current of quickening life to my constitution. Very well ; I have revealed my will concerning this to you already in divers manners and at various times. And now I will try a fresh tack. I will create my own strength for my own need ; I will throw out supports so close to my root-stock that you cannot exhaust them with fruit-bearing.” But the poor tree, like many of us, had reckoned without its host. The cultivator sees, condemns, and slashes off the horrid suckers at once, and this illegitimate source of strength is suddenly drained dry. But the tree was right. As a remedy for over-cropping, the suckers were good for the life of its roots, though not for the well-being of its fruitful top ; the suckers were its emphatic protest against over-cropping, and, though in a widely different language to most of the other remonstrants, suckers also do naturally appeal to us along the whole of their lines, to thin, thin the fruit. So much for the necessity of thinning the fruit. I will now give a few simple instructions as to the time and manner of doing it, and the extent to which it ought to be carried.

There is considerable difference of opinion in regard to time. The whole range, from flowering to the storing or seeding of the fruit, has, I believe, been chosen by various practitioners and writers as the very best time for thinning. This, while it may be puzzling to the inexperienced, should also assure them ; for while such variations in practice may not prove one time to be as good as another, or better, it at least shows that so long as the thing is done, time is not

the important question in regard to it that many imagine. And yet I hold it is important, and that the thinning ought not to be one act, but many. I cannot agree with those who advocate the thinning of the flowers of fruit-trees out of doors. In our climate this savours too much of presumption, and an excess of interference, which nature justly resents. Flower-thinning may safely be left to the tree. The expansion of flowers into full blossom, and their progress to fruit babyhood, hardly exhaust the tree at all. All these supplies, so far, are inherent in the bud, or laid up at its base, and if you reduce the number of buds in the spring, I don't believe that you can get the supplies that were laid for those that you remove, diverted into those that are left; and if you could, I question the wisdom of giving them more than nature has provided for them at this stage. Babies are none the better, but all the worse, for being unduly crammed, whatever may be said about men—or turkeys. It is difficult also, without a very great sacrifice of time in the scrutiny, to discriminate at a glance between perfect and imperfect flowers, or determine with certainty which will set,—this or that. The thing is impossible. For these reasons, the thinning of the flowers of fruit trees in the open air had better be dispensed with. It is alike unsafe, uncertain, and unnecessary. A fortnight or three weeks after the fruit is set, is a suitable time for the first thinning; a second might take place in another fortnight; and the third, and final one should be, after stone-fruits are stoned, and when apples and pears have grown to about one-sixth of their full size. No set time can be laid down for the process. The size and condition of the fruit determine the time. And it is safest not to thin severely until the natural period when each fruit-tree throws off its superfluous fruit has passed. For instance, no wise man would thin cherries until the fruit had passed through the dropping or yellow stage. The only thinning that might precede these natural ones would be the removal of imperfectly set and malformed fruits. In the case of thinning too early, the chances are that those taken off might have gone on to maturity, while those left might be destined to drop. It is difficult to fix the right moment on paper, though the practised eye can speedily settle it on the tree. Neither too early, nor too late, and with caution and skill always, are good and safe thinning instructions, of universal application. The middle course here,—there are always three courses,—is the only safe one.

As to the manner of thinning, nothing can well be more simple. With the fingers and thumb-nail as the handy instrument of the eye, go to work upon the trees as soon as the fruit is fairly thoroughly set. Remove every ill-formed and badly-placed fruit, and thin the thickest of the clusters where the young fruit is crowded together. Cherries, Plums, Apples, and Apricots are most given to over-crowding at this early stage. Leave only from two to six of the strongest fruit in each bunch or cluster. At the second thinning, reduce them again by one-half, and if the clusters are placed closely together, only one should be left to each at the final thinning. The largest should invariably be chosen to remain,

provided their form is perfect and their position good. No wall fruit should ever be left crushing under or against a branch, as the compression will ruin its appearance for table. The second thinnings of such stone-fruits as Apricots, Peaches, and Plums are generally preserved for tarts or jams, and sometimes the last thinnings also. The operation should be completed on Apples and Pears before their fruit are of any value.

Other fruit, higher or lower than either of these, might be thinned with great advantage. Numbers might grow Grapes out-of-doors almost equal to hot-house ones, if they would but take the same trouble in thinning bunch and berry to the same extent. Descending lower, the thinning of Currants and Raspberries is tedious work, but it improves the size amazingly, and Strawberries swell into marvellous mouthfuls of lusciousness if only three or four fruit are kept on a stem. A sharp pair of scissors in nimble hands will make quick work of thinning a row of strawberries in bloom. To grow monstrous Gooseberries, again, thinning is indispensable, and the thinnings here can be converted into puddings on the instant.

As to the extent of thinning, no rule of general application can be laid down; it depends upon so many considerations, such as the strength of the tree, the quality of the soil, the objects of the grower, &c. The following general rules may, however, be useful. In all such cases as this, it is better to give flexible rules, than unyielding figures. I am not aware that I ever saw a perfectly satisfactory fruit crop measured off by rule or line. If I laid down a hard-and-fast line for Peaches, for instance, of six, nine, twelve, or eighteen inches apart, not a single reader could adhere to it exactly. One great hindrance to the efficient thinning of fruit is a mistaken notion that numbers mean weight, and that a full crop cannot be had without great numbers. But if three peaches weigh as much as nine, where is the gain in having the nine? There is no gain, but great loss, in the undue increase of numbers. Peel carefully and cut out the stones from both lots, and weigh the amount of peach in each, and you will be astonished at the difference of peach-weight in favour of the lesser number. It is the same with all fruits. He that grows small fruit grows trash; it is rind, it is stone, it is seed,—anything, everything, but good, sound flesh or pulp. He who grows large fruit has a maximum of good grain, with a minimum of such worthless chaff as seeds, rind, and stones. Further, full average size is favourable to quality; though there are many exceptions to this rule. Small fruits are often like sweetmeats; in fact, they are unnaturally, unpleasantly sweet at times, especially if their diminutive size is associated with deformity. Still, the above rule holds good; notwithstanding the exceptions, size and quality mostly are found together. Note, I do not write that mere size nor large size is proof of quality, but average size is mostly associated with it. Finally, fine fruit are much more easily gathered and stored, and more pleasing to the eye than small fruit. Surely, more need not be added in favour of prompt, vigorous, and thorough thinning. No one, I think, will deny

that it has the effect here ascribed to it, that it preserves the health and husbands the strength of the trees, guides the vital force into the most useful channels, and enlarges the size, improves the quality, and enhances the value of the fruit.—D. T. FISH, F.R.H.S., *Hardwicke House, Bury St. Edmund's.*

THE GARDEN MENTOR.

JUNE is generally the most pleasant month in the year; the weather is fine and agreeable, and the days reach their greatest length. Flowers make their appearance everywhere, and in meadows, lanes, and hedgerows, the rapid increase of gay colours and curious forms delights the wayfarer.

KITCHEN GARDEN.—The long continuance of dry cold weather and northerly winds has been unfavourable to the growth of young crops. *Onions, Carrots, Parsnips, Beet, Salsify, Scorzonera, and Turnips* should be finally thinned to the distances at which they are to stand in the rows, and the ground between them kept well stirred with the hoe; the early sown *Parsley* should also be finally thinned out. The main crop of *Brussels Sprouts, Savoy, and Borecole* should be planted out as early in the month as possible. *Cauliflowers* should be planted at the beginning, and again towards the end of the month for autumn supply. The main crop of *Broccoli* should also be got out towards the end of the month. If the weather be dry, the plants should be kept well watered until they get well established. *Lettuces* should be planted two or three times during the month; it is a good plan to sow Lettuce thinly in drills during the summer months, and to thin out the young plants. Some more *Celery* should be planted at the beginning of the month, and a good breadth towards the end for winter use. *Vegetable Marrows* should be planted out in a good deep rich soil, and *Cucumbers* on ridges.

Sow: Peas at the beginning of the month, and again about the middle, the late sowing should be of early varieties; Beans twice; Scarlet Runners at the beginning of the month for late crop; Kidney Beans every fortnight for succession; Spinach every ten days or a fortnight for succession; Lettuce twice during the month; Red and White Turnip Radishes in cool moist situations; Endive a little at the beginning, and again towards the end of the month.

FORCING HOUSES.—*Pines*: When the early fruit begins to ripen, air should be freely admitted, and water should be gradually withheld. Fruit that is swelling should have a moist atmosphere, and be liberally supplied with water, and occasionally with liquid manure. Some plants should now be induced to show fruit for the autumn and winter supply, and some of the strongest succession plants should now be put into fruiting pots for starting in the autumn; the Black Jamaica and Smooth Cayenne are the best for this purpose. The whole of the succession plants will now require a shift; see that they have a steady bottom-heat after they are fresh potted; give air freely in fine weather. *Vines*: Keep the house containing ripe fruit dry, and give abundance of air; continue to thin carefully the berries in late houses; keep the laterals well stopped; avoid over-cropping. The quantity of fruit left to ripen should be proportionate to the

state and size of the vine ; if too many bunches are left, small berries and a want of colour will be the result. Spare no pains to keep the foliage clean and healthy.

Peaches : When the fruit begins to ripen a drier atmosphere must be maintained, and air, in abundance, should be given. Attend to the stopping and tying down of the shoots in the late houses. Syringe once or twice daily to keep down the red spider ; it is a great point to keep the foliage clean and healthy, in fact, without it there can be no successful fruit-growing. *Figs* : When the first crop of fruit is all cleared off, every attention should be given to the second crop ; keep the borders well watered, and persevere in syringing the foliage to keep it clean.

Cucumbers and Melons : See that these have a proper bottom-heat ; keep the shoots stopped and trained ; attend to watering and air-giving. Plant for late crops.

HARDY FRUIT GARDEN.—This is an important and busy month in this department, as fruit trees of all kinds now demand attention. Continue the disbudding and stopping of the shoots ; nail or tie in the young shoots as they require it. No quarter must be given to insects ; the moment any are perceived prompt measures should be taken to eradicate them. Attend to the proper thinning of the fruit. The crops of all kinds of fruit promise to be heavy this season, and therefore thinning should be attended to early, and well persevered in. Stop and thin out the strongest shoots from the interior of *Gooseberry* and *Currant* trees. Put some straw between the rows of *Strawberries*, to keep the fruit clean.

FLOWER GARDEN.—*Plant Houses* :—Observe the greatest cleanliness in these, otherwise insects will soon become troublesome. Give air at night as well as during the day. *Soft-wooded Plants* intended for specimens should now have plenty of room, and should be turned round occasionally ; attend carefully to tying, training, and watering, and shift any of the plants that require it. All the hardier *Hard-wooded Plants* not in flower should be placed in a somewhat sheltered, shaded situation out-of-doors. The young stock will do best in a cold pit or frame, with plenty of air day and night ; shift any plants that require it.

Pits and Frames.—Attend to the potting of seedlings as they require it, also to potting-off cuttings. *Balsams*, *Cockscombs*, *Globe Amaranths*, &c., will now be growing freely ; keep them near the glass, and give plenty of air and water ; shift them when they require it, using a rich compost.

Out-Doors.—*Anemones*, *Ranunculus*, *Tulips*, *Jonquils*, &c., should be taken up as soon as the leaves wither, and be dried and stored away. All *Bedding Plants* should now be got out without delay. Plant *Dahlias* and tender *Annuals*, and other plants in the borders. If the weather should be dry, keep all newly-planted things well watered, until they get established in the beds, and begin to grow away freely. Propagate *Wallflowers*, *Rockets*, *Arabis*, *Iberis*, *Alyssum*, *Aubrietia*, *Myosotis*, &c. Look well to the *Roses* ; regulate and tie up weak

shoots, and clear away insects, that the blooms may be as perfect as possible. Attend to the rolling of the walks. Mow lawns weekly, and aim to maintain as complete an appearance of high keeping as possible.—M. SAUL, *Stourton*.

SEDUM SPECTABILE.

SOME years back I received from the Royal Horticultural Society, under the name of *Sedum Fabaria*, a plant which I have since learned should bear the name of *Sedum spectabile*. I cultivated the plant in pots for some time, and found it very useful for autumn decoration in the conservatory, but for the last four years I have used it extensively for bedding and border purposes out of doors, for which I find it to be extremely useful; it is indeed very highly to be recommended as an autumn-flowering plant, and even when not in flower all through the summer, the plant has a very pleasing appearance, and when viewed from a distance, might well be mistaken for large, well grown plants of Auricula. Its peculiar and very pleasing green forms a charming contrast among foliage plants. In the autumn it produces large corymbose heads, some of them 6 in. across, the flowers being of a very delicate roseate pink, very soft and pleasing to the eye.

When the flower-heads have faded they should be carefully removed, and the leaves will gradually assume a bright yellow tint, very striking at a distance, and contrasting in a most agreeable manner with the various autumnal tints. The plant is perfectly hardy, and very easy to propagate, it being only necessary to divide the roots into as many pieces as is desired, while side-slips will strike root very readily in light sandy soil, either in a gentle heat, or in a cold pit, or in a shady place out of doors. It requires no coddling, and the principal care it needs is to be lifted about every second year, and the plants greatly reduced in size, and replanted. If grown again in the same place, the bed should be well renovated with fresh soil, and trenched up.—JOHN COX, *Redleaf*.

THE ASHEN TREE AS A CURATIVE AGENT.

ON days of yore, men and women were led to the stake for cases of supposed witchcraft, but in this nineteenth century men's minds have become more enlightened, and what was then considered as criminal and deserving of death, is now simply regarded as ridiculous.

That some relics of superstitious belief still linger in our midst was proved in the Island of Jersey on Good Friday last, at 4 a.m., when four respectably dressed females, accompanied by a child, a few months old, might have been seen wending their way in a carriage and pair to a certain nursery in the parish of St. Saviour's, for the purpose of passing the said child through the bole of a young ash-tree, to be rent for the purpose. The operation of splitting the tree longitudinally having been performed most carefully, and the slit carefully held open, two of the ladies most carefully passed the child through the opening

nine times consecutively, under the impression that the child would be cured of an internal rupture through the performance. After this ceremony had been gone through, the tree was carefully bound up, and bedaubed with clay compost, in true grafting style; the assumption being that as the bark callused over, and the wound caused to the tree healed up, the child would also gradually become cured. What affinity there could possibly be between the healing of the tree and the cure of the child's affection, remains a complete mystery in the mind of the operator, although the ladies in question were quite confident of its efficacy, and asserted in proof the case of a person who had been subjected to the ceremony twenty-four years previously, and was now ablebodied and sound. *O tempora! O mores!*

The nursery trade is most undoubtedly entitled to the benefit of this rite, and ash-tree growers in particular should note that the ceremony must be performed on Good Friday, and before the rising of the sun. "The better the day, the better the deed," may be applied to the superstitious bearing of this case, but as ashen trees subjected to this treatment would heal up if operated upon any day between the 25th of February and the 25th of May, I beg to plead in behalf of the trade that the season for performing the rite be prolonged, and not limited to any particular day, feeling confident it would be equally efficacious on any day within the three months specified.

Nurserymen should be awake! In these competitive times, ashen trees must be grown! Not only every new idea, but every ancient superstition, needs to be utilized, for the credit side of their balance-sheets.—C. B. S., Jersey.

FIG GROSSE MONSTREUSE DE LIPARI.

S an early, free-fruited useful variety, this Fig merits attention, and is well worthy of cultivation. In its general appearance it resembles, in many respects, the good old Brown Turkey, differing, however, in the more turbinate, flattened shape of the fruit, and in its habit of growth, which is more stubby; it is, moreover, a better producer of the first crop. In this last respect it is of sterling merit, and one of the most satisfactory varieties in existence. It is essentially a "first-bearing" variety, and but rarely produces a second crop. It is well known that some varieties of Figs are apt to cast their fruit much more readily than others, through some defect in the setting. This the Grosse Monstrueuse de Lipari very rarely does, so that almost every fruit which is formed—and they are formed in abundance—comes to perfection; and this, too, under very adverse treatment, as I have frequently proved. The fruits ripen about the same time as those of the Brown Turkey, and the plants require much about the same treatment.

Fruit, medium-sized, roundish-turbinate, much flattened at the apex. Skin light brown or chestnut-coloured, shading off to dark, and with dark-coloured ribs, and occasionally dark spots throughout, the whole being covered with a

thick bloom. Neck very short. Eye large, almost closed. Flesh dull red, thick and juicy, very pleasantly, although not richly flavoured. Habit of plant robust, and very prolific. Early, suitable for cultivation on the open wall.



This variety comes from France, and is yet comparatively unknown in this country. The accompanying figure is taken from a fruit in the collection of the Royal Horticultural Society.—A. F. BARRON, *Chiswick*.

INSECT INTOXICATION.

IT is well known that the flowers of the Hollyhock (*Althaea rosea*) contain an abundance of honey, and humble bees and hive bees seem alike fond of it. But unfortunately the honey possesses an intoxicating or stupifying property, the precise nature of which I do not know. The first year or two that I grew Hollyhocks in this neighbourhood the bees did not touch them, being,

I assume, new ground to them, the hidden treasures of which lay undiscovered; but now they seem to prefer them to any other flowers, and the otherwise gay scene is enhanced by the motion and music of these winged labourers. They sip and sip till they become too helpless to fly, although they retain the power of stinging, as I have unfortunately experienced more than once while handling the flowers. It is indeed pitiable to behold the humble bee,—he is the greatest tippler,—with rounded form and rustic garb hanging by one leg to the petals of a flower, his portly person suspended between earth and heaven, while he vainly struggles to "hold on." Down at last he goes, luckless wight! for a fall of six feet cannot be pleasant, even to a bee when gorged with feeding. Safe on terra firma, he goes through a series of antics excessively ludicrous—running, tumbling, whirling, sometimes recovering and taking wing, but oftener lying exhausted on the cold ground till the next day.

The hive bee is less funny, but what a sad loss of time to him! for he oftener crawls into the "pockets" of the flowers, and remains there while the earth revolves, and till the sun again warms him into life and activity. I wonder what account he gives to his queen of his long absence and little gains, as he returns slowly and leisurely to his hive. But the worst remains to be told. Neither of these insects seems to derive wisdom from experience. Human reason and animal instinct seem alike assailable by these seductive influences, for I am pretty certain, judging by numbers, that the same individuals return again and again to their drunken orgies.—WM. PAUL, *Waltham Cross, N.*

THE ART OF FORCING FRUIT AND FLOWERS.—III.

FASTLY, I propose to treat upon the forcing of native subjects, or of such as grow in more northern latitudes, &c., and which, by the use of an unusual degree of heat and the other necessary accessories, are pushed forward at, to them, an unusual period. These, it is almost needless to remark, consist of such subjects as Roses, American plants, Lilacs, and other deciduous evergreen shrubs, bulbs, and various culinary products, *e.g.*, Seakale, some of which latter require unnatural forcing to make them properly edible, and with which from their popularity all are more or less familiar.

To treat these and similar subjects successfully, something more than the actual forcing is needful. Not only has this to be attended to at the proper season, but each subject has to undergo some preparation, during the previous growing season. A well-matured growth has to be secured as a foundation or base for the after-structure, *i.e.*, the crop to be forced.

In the case of deciduous plants, a good strong growth must be formed, and this must be so hardened afterwards by exposure to the ripening influence of the autumn sun, that it may not be wanting in perfect development. If, in fact, it were possible, by means of an early start, to bring the season's growth to perfect maturity weeks before the accustomed period, so much the better. This more

particularly applies to deciduous subjects of the *Deutzia* or *Syringa* type, and to some kinds of fruit trees. The pots which contain such subjects should always be well filled with roots; hence moderate-sized pots only, commensurate to the size of each plant, should be used. Water must be given copiously during the growing season, and liquid manure liberally allowed. When the necessary summer growth is completed, the weather being not excessively dry at the time, the pots containing the plants should be laid on their sides and be covered over with loose damp litter, to protect and keep the roots in health, by assuring to them a slight amount of moisture. Thus it will be possible for each plant to store away such an amount of accumulated vigour and vitality, approaching to excitability, that each will answer readily to any subsequent artificial means employed to start them into activity at an unreasonable and non-propitious period.

In regard to evergreen plants, they, by having their growth forwarded, may be made to perfect their buds at an earlier date; though the seemingly somewhat harsh means resorted to in the case of deciduous subjects, in order to force on and to maintain a period of premature rest, will not answer in their case, as a reasonable amount of root-moisture must be constantly afforded, with the view to keep their leaves in perfect health and with their functions unimpaired. All possible exposure to the full sun on all possible occasions must, however, be assured them.

Prepared thus to grow or bloom with the least aid in the form of heat and moisture, the buds upon both classes of subjects being very prominent, it will be necessary to place them under some kind of suitable protection during severe frost, more especially after a very mild period, should such set in during the subsequent winter.

In the case of plants grown in the open ground, and which are intended to be taken up and forced, the only aid which can be given them, is to assure to each a clear space, so that light and air can have free access to every part. Those which bloom best upon strong young shoots of the current season's growth, such as some species of *Prunus*, should have the young shoots, if too numerous, thinned out, and lesser sprays, if ill-placed or unnecessary, removed. Others which bloom more abundantly on older branches, such as *Deutzias*, may be aided by a judicious system of summer-pinchning, or stopping of the grosser young shoots. To stop a too late autumnal growth, and to help each plant so grown to ripen its wood well and early, it is an excellent plan to "lift" each plant separately early in October with the aid of a strong spade. This consists in loosening the roots and lifting the whole ball up some inches from its bed, without exposing the roots, and then letting it down again, this being done with the view of moderating its root-supply, and so inducing an effort towards resting, and the early ripening of the wood. This fact should be borne in mind in connection with forcing young fruit trees, after their recent removal from without, into any structure. The sooner they can be taken up in the early autumn and placed

where they are to grow, so much the greater will be their chance of success. This remark applies to various fruits, even such as Cherries, which may be taken up thus in early autumn, forced moderately, and fruited with success the same season. It is not even necessary to wait until the leaves have fallen off, though judgment must be used to ascertain whether they have ceased to exert their primary functions to a useful degree or not. The same remarks apply with equal force to more lowly productions, in the form of Rhubarb or Seakale. The earlier these can be induced to make a robust growth, so much the better will be the supply of organisable material.

In regard to actual forcing, these hardier subjects fall under two distinct heads, viz., those which are forced for the purpose of obtaining good crops of fruit; and those which are forced for their early flowers alone, irrespective of any considerations as to the value of the plants themselves. The former group, representing the growing and bringing to early maturity and perfection of various hardy and semi-hardy fruits, such as *Peaches*, *Cherries*, *Strawberries*, and even *Grapes*, demands by far the greatest amount of skill, and involves an amount of unintermittent study and close attention which would surprise the uninitiated or superficial observer. And yet in the description of the necessary formula very few sentences are called for. We need at starting but to imitate our own actual spring, under its most favourable conditions, by rejecting all its harsher, non-felicitous, fluctuating features. Thus, for any house or structure containing such subjects, we take a temperature of 45° as a starting-point to induce a gentle activity, a few, 5° or 6° more being admissible, with actual sun-heat, and with an air on, but not one degree more by night, save as the warmth of the outer atmosphere may influence it, and even then it were better to afford air in lieu of permitting an increase of temperature. By this means, and an occasional damping over of the wood and other cool internal surfaces, the flower or wood-buds will be induced to "break." At the first symptoms of actual activity, let the heat be very gradually increased, by say 1° in every three days, up to a mean of 55° , or temperate. This, when attained to, should during all further progress be maintained as a minimum. It is a safe temperature, as with ordinary care in air-giving, and affording moderate supplies of moisture, &c., a sound healthy advance will be assured,—without fail. When the plants are in bloom, a dry, buoyant, or rarified atmosphere must be maintained to aid the setting of the flowers; and immediately a sufficiency of fruit is set, a slight increase of heat and moisture must be allowed—moving gently, but certainly onwards until the middle of March or beginning of April is reached, when the general treatment should be merged into such as I have described in my former paper (No. II.) as being necessary for tropical fruits, and which must be continued until the fruits ripen, and the wood is prepared and properly ripened for the ensuing season, which may be early or late in autumn.

Finally, those subjects which are forced to produce very early flowers must have at the commencement a very high temperature, with moisture in abundance.

Slow or gentle means will, in their case, not suffice, and, that no delay whatever may occur, a mean of 60° or upwards must be started with. The same applies to very early forced *Seakale* or *Rhubarb*. When, by aid of excessive heat they have made a start, then it will be possible to somewhat reduce the temperature, though the mean given above should not be gone below during the after active growth, and until the actual blooms begin to expand, when a lower temperature will be more conducive to keeping them fresh as long as possible.

Some plants, such as *Prunus triloba* and its allies, will, if strongly grown, push young wood-buds in lieu of the flower-buds, which are expected. In all such instances it will be necessary, when these young shoots are long enough, to pinch each one back to the base, as this will induce the dormant blossom-buds on either side of each shoot so formed to push forth.

It is best in all cases, when not pushed for time, to allow the blossoms on all forced plants to expand in a somewhat cooler temperature than that in which they are grown. Thereby they attain a better colour, and the flowers are of better substance, and likely to last the longer, whether left upon the plants or severed from them.—WILLIAM EARLEY, *Digsowell, Welwyn*.

ON COMPOSTS FOR THE AURICULA.

S regards the Compost best adapted for the healthy growth and preservation of the Auricula, I believe that a sound, sweet, wholesome soil is the first consideration. The mixture which I have prepared and made use of for over thirty years has brought me the most complete success, and, therefore, I cannot do better than describe it for the use of my readers. In the first place, I remark that I only make use of one kind of dung. Half-a-century ago Mr. Emmerton, of Barnet, near London, gave us his work on the culture of the Auricula, and with him I agree almost entirely, except indeed as regards his preparations for Composts, such nostrums not being, in my opinion, worth the trouble and expense of preparing them. His plan of management through the different seasons of the year is excellent, if duly followed out, but the labour and expense attending the procuring of the soils which he recommends I look upon as time lost and money spent to little purpose. Goose-dung, night-soil, sugar-bakers' scum, bullocks' blood, &c., having been got together, and having gone through all the processes recommended, are not a whit better for the purpose than the one plain simple manure, cow-dung, which is easily obtainable in all parts of the country. I am not writing against composts in a wholesale way, nor do I condemn them untried, for during the period from 1825 to 1832 I tried them fully up to the mark, as recommended in Mr. Emmerton's work, and with pretty fair success. Subsequently to that date, however, I began to make up a compost which, after due consideration, I was persuaded would answer; and so it did, much better, indeed, than Mr. Emmerton's, leaving out of question the trouble and expense of procuring such costly ingredients.

Before I had seen Mr. Emmerton's work, I had tried making up composts with first one sort of manure and then another. I tried horse-dung, as recommended by some of the Lancashire growers; I also tried night-soil, cow-dung and night-soil mixed, and sheep-dung partially mixed with yellow loam, and again with black turf-loam. This latter I found to answer better than anything I had then tried, and quite as well as Mr. Emmerton's compost; but after all the experiments, Emmerton's into the bargain, I have never in all my time found anything answer so well for securing a continued healthy growth, and for the preservation of the plants, as the one manure,—cow-dung, got together and mixed up as I shall now recommend. Take two-thirds cow-dung clear from straw or other littery stuff used as bedding for the cows; it will answer well enough if taken from the cow-shed at any time of the year, but if it can be got from the fields about the end of May or beginning of June, when the cows are feeding on grasses alone, the manure will be more suitable for the purpose, as it will consist more entirely of the essence of vegetables than when taken from the shed where the cows are fed on dry food.

Previously to getting in the dung, be prepared with a sufficient quantity of the right sort of earth. Black peaty loam from the moors, such as may be got on the moors in Yorkshire and Lancashire, is far preferable to any other kind of loam, being more congenial to the nature and habit of the Auricula and of most other Alpine plants. Along with this loam, if got from the localities just indicated, will be obtained a portion of white, gritty sand (not sufficient for the purpose, though a sufficiency may be got about the same places), which does not require to be over-fine, and, indeed, will be all the better if a little coarse. First mix a sufficient quantity of this sand with the black peaty loam, and run the mass through a fine sieve; then take, say, three barrowsful of clear cow-dung, and one barrowful of the mould and sand, and incorporate them, beating them up together in a similar way to that in which bricklayers or stonemasons beat their mortar for building purposes. After this, wheel the compost on to some open space in the garden or field, where it may have the benefit of exposure to all weathers—frost, sun, and air. When got into a heap in this way, allow it to lie for about six weeks, and at the end of that time chop it down, and give it a regular turn-over, repeating the chopping and turning every three weeks or so, until it is fit for use, which will be in about fifteen or eighteen months. Thus, if the ingredients are got together in May or June, as recommended, the compost will, by this frequent chopping and turning over, be quite fit for use by the following November twelve months; but as that is the wrong season for re-potting the plants, it should be fetched in, put into tubs, and covered up till the spring dressing-up time—February, and re-potting time—July.

A few days previously to making use of the compost, the quantity required should be taken from the tub, and run through a sieve not over fine, say $\frac{1}{2}$ -in. or $\frac{3}{4}$ -in. mesh, as the plants thrive best in rather lumpy earth, and certainly do not like

their roots and fibres choked up in fine close stuff. After sifting the earth in this way, spread it out in the open air for a day or two before using it, so as to clear it of mouldy matter (a very requisite precaution), at the same time keeping off the rain and wet, as it is best to have it rather dry, both for top-dressing and re-potting.

With respect to the treatment of the plants through the different seasons of the year, I propose on a future occasion to give my own practical experience therein, and at the same time to add a list of the names of the choicest first-class varieties of the present time. This I will endeavour to do not later than July, which is the month I most recommend for performing the operation of repotting.—J. HEPWORTH, *Huddersfield, April, 1870.*

ON PLANTING WALL-TREE BORDERS.

LAST year some of your correspondents wrote very freely both for and against the practice of planting the borders of wall trees with vegetables. Without discussing in detail what was then said, I would just observe that the practice, though bad, may be considered a necessary evil, for the sake of the shelter for early crops afforded by the walls. And with proper care, the injury to the roots of the trees may be lessened, especially in the case of those the roots of which extend beyond the borders. The latter are, in general, as wide as the walls are high, that space being considered proportionate to the range of the roots, as the height of the walls is to the extension of the branches. But the growth of these latter, as well as that of the roots, depends much on how the trees are pruned, especially in summer, for the loss of the leaves by topping the tender shoots too much, checks the growth of the roots. After all, the chief evil of planting the borders is the loss of the fibres, or surface roots, by the operation of digging in making preparation for fresh crops. This is well exemplified in the roots of orchard trees, which spread near the surface, under the natural covering of grass, much as the wood does above. In such places, the roots derive more nutriment from the atmosphere than in those cases where they are deeper in the ground. They readily imbibe the ammonia which descends in rain, and also absorb dew from the grass. Without these two powerful agents and aids to vegetation, all kinds of manures must fail, however skilfully used by the cultivator of the soil. The loss of roots is mainly caused by the use of the spade, but if a fork is used, with care, even near the stems of young trees, they may be the more readily spared. Still, with the greatest care, trees often fail through ungenial seasons. In such seasons the leaves become blighted, and rendered unfit to fertilize the sap from the roots. Hence trees may die, though their roots may seem healthy, instances of which may be seen in the issue of strong plum-suckers from the stocks of dead peach and apricot trees.

Ever since gardens were “walled in,” the borders have been more or less planted with vegetables; and formerly, with the seasons as variable as now, but with less efficient means of protecting the trees, fruit seems to have been equally

abundant. I must, however, raise my voice against planting the borders, whenever it can be avoided. Rather than that, I would prefer to see them covered with rough gravel. Still, I am aware of the many shifts one has to make in order to keep up supplies of early crops, and thus I consider that anything short of the borders being paved with stones will not be proof against the temptation to use them only for small-growing vegetables.

I may here advert to the healthy condition in which trees on walls in paved courts, where the roots are not disturbed nor manured, except by what is washed in between the stones, are generally found. Trees in such situations seem to thrive better in severe droughts than those in pampered borders, because their roots or fibres are kept more equally moist under the stones. Illustrations of this may be readily seen by merely turning over "surface stones" on a hot day, when the under sides will be found to be damp. This curious fact may have given rise to the complaint that poor land is rendered poorer still by the removal of the stones. And though this may not savour of "good farming," yet in some seasons, and in some kinds of soil, it may still be true."—J. WIGHTON,
Cossey Park, Norwich.

HARDINESS OF LILIUM AURATUM.

SOME plants of this fine Lily were turned out last June into the flower garden here, in a mixed bed of sub-tropical plants; and instead of lifting them, they were mulched over with rank litter, to preserve them from frost. Early in April last, while the beds were being manured and dug over, I was astonished, upon examining their condition, to find that one of them had quite grown up through the covering, while the others were making their appearance beneath.

The winter here has been remarkable for the long continuance of frost, consequently the ground around these lilies could not have been free from frost till about the middle of March, so that they were evidently making growth during the time the ground outside the mulching was frozen. I am fully aware that outside culture is not new; but that the bulbs should break away into early growth, with so low a ground temperature, and so far north, is worthy of notice. I have no doubt that if potted bulbs were sunk in the ground so that the bulbs would be 5 in. or 6 in. below the surface, and were covered over with the same depth of dry litter, they would be found quite safe in the spring.

We grow a number of these Lilies in pots, so as to have them flower long in succession. Our method is to repot them as soon as the stems are fairly ripened, when they are placed in a dry room clear of frost. They receive no water until the stem appears above the surface, at which stage they are taken to where they are to be grown. We have them now (April 26) in different stages, some 5 ft. high, others not yet out of the soil; several which have lately made their appearance have their stems fully three-fourths of an inch in diameter.

I had expected that some good crosses would have made their appearance ere this, as the plant seeds freely. It takes twelve months, however, to vegetate, and so may have disappointed hybridizers in getting up the young crop. The same may be said of *L. giganteum*. We have a stock of thriving young plants of both sorts, which have vegetated this spring from seed sown in February, 1869, those of the latter sort from plants grown and flowered in the open border.—J. WEBSTER,
Gordon Castle.

SWEET-SCENTED FLOWERS.

No. II.—THE TUBEROSE AS GROWN IN AMERICA.

OBSERVE by an article in the FLORIST for January last, and also from inquiries and remarks on culture in other gardening periodicals, that the Tuberose is beginning to attract attention in England; and I have been led to conclude that in a few years' time it will probably be grown in about one garden in a hundred, if those who have grown it, and those who have not, favour us with a series of articles on the way to do it! Had it been the case of a seedling Variegated Zonal Pelargonium to be sent out for the first time at a guinea or upwards per plant, warranted small, the floral world would have gone mad to obtain it; but as it is *only* one of the sweetest and purest of white flowers grown, obtainable, too, in flower all the year, and only costing five cents, comparatively few persons in England think it worth troubling themselves about.

I never heard of any great success attending the efforts of the few growers of the Tuberose in England. This may, in a great measure, be owing to the miserable roots usually offered for sale; but I have no doubt that if there was a demand for good roots, the supply would be forthcoming, if not from Europe, at least from this country. Peter Henderson states that there are a million of roots grown in the New York neighbourhood, and as that is about the northern limit of successful cultivation, except for the flowers, we can imagine that there is also a large quantity grown further south.

As regards the flowers, they are used at all seasons for making up wedding bouquets and funeral wreaths, as well as for decorating churches, and perfuming restaurants. They may be obtained from a single flower in a scented geranium leaf, or a sprig of Lycopod, for the button-hole, to a dish 2 ft. in diameter filled with the blossoms set in sand, and can be purchased from the flower-girls in Broadway, New York, all the year round. No one expects to grow the roots as a trade speculation in England, the summers are not hot enough; but it would be easy to have abundance of Tuberose flowers, say from the first of September to Christmas, in gardens of any pretension. What would give to most ladies more pleasure in the way of flowers than an abundant supply of Tuberose blossoms during the shooting season, when, as a rule, if flowers are abundant, there is little variety? Mr. Gibson, of Battersea Park, has shown the public how

to grow stove plants successfully in the open ground. The same preparation of ground to husband heat would also grow Tuberoses, and a light rich south border would suit admirably, though they should not be planted close to the wall, on account of the troublesome red spider.

The details of treatment are as follows:—Pot the bulbs early in May in 4-in. pots, in rich soil; bury but a small part of the base, not so much to avoid the danger of rotting, as to prevent having all the roots at the bottom of the pot; place them in a warm house, give but little water until they are well rooted, and then abundance; harden off, and plant out when the ground has become thoroughly warmed, placing the top of the bulb at least three inches below the surface. Nothing more is required but keeping the border thinned and clean. If they are good roots, and the position is sheltered, the flower-stems should not want tying. They should commence to flower early in September. When the nights get cold, take up and pot all those from which the flowers have not been cut. If taken up with care, potted in 9-in. or 10-in. pots, without breaking their roots or earth-balls, and duly watered and shaded, they should open every flower. Those which do not then show flower-stems will come up after, so as to keep up a succession of flowers until Christmas, and probably later, if they are kept in a temperature of from 60° to 70°. A bottom heat some 5° to 10° higher than this is of service. One caution—they take lots of water, and if the roots get dry the buds shrivel up without opening. A better and less troublesome plan even than potting; is to plant them in a stove or melon-bed, in rich soil, and treat them as to heat, &c., like winter cucumbers.

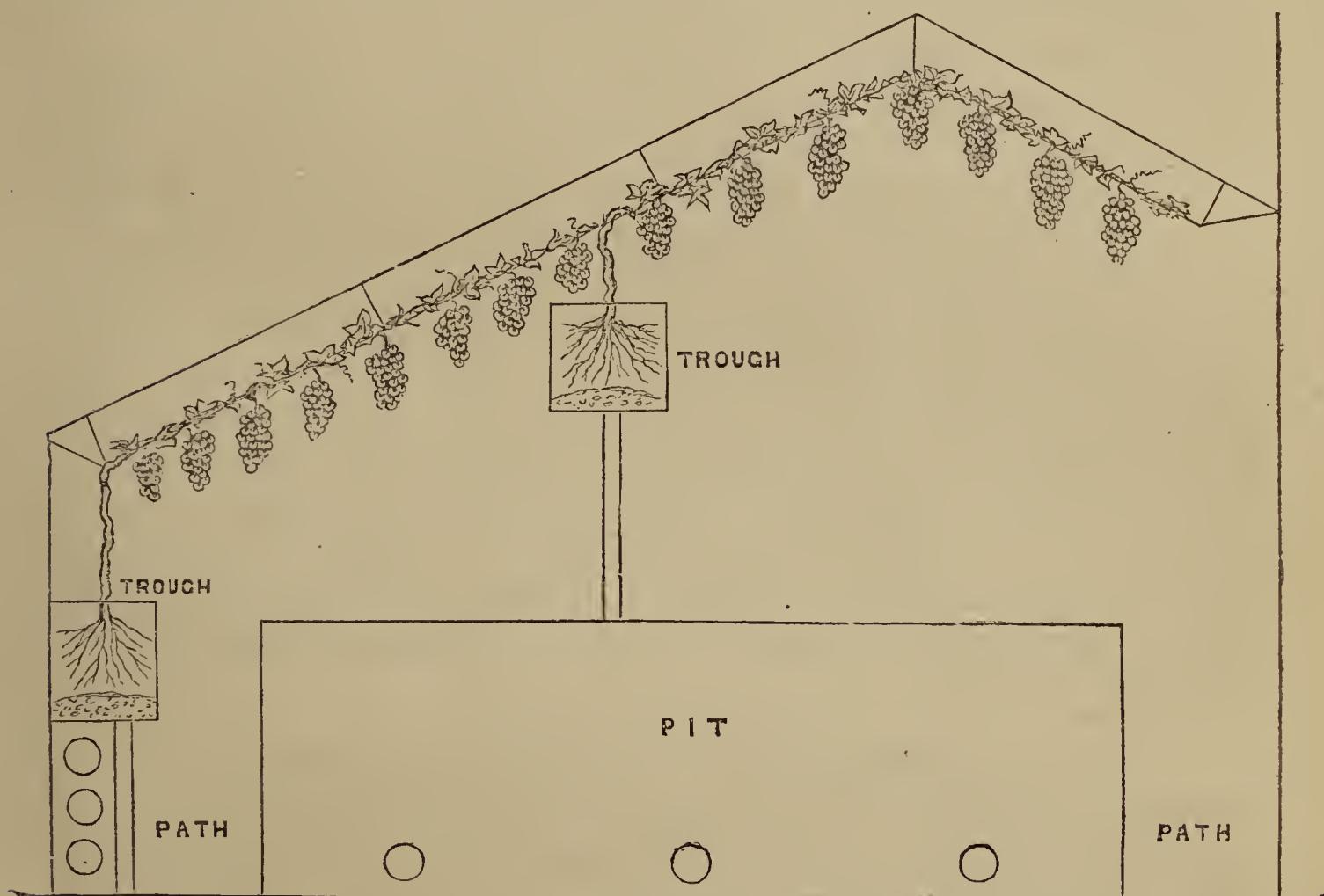
I saw during the last winter a house 300 ft. long filled with Tuberoses planted out. We have had forty-seven flowers on a stem, and one of our customers informed me that he had as many as sixty-nine on one. It would not interest your readers to hear how we grow them by tens of thousands for the trade, but if they should cross the Atlantic they might see for themselves. I may add that the bulbs when dry should be kept warm—the temperature not less than 50°—or the flower-germs decay. A place where Caladiums keep well is first-rate for Tuberose bulbs.—JAMES TAPLIN, *South Amboy, New Jersey, U.S.A.*

A HOUSE FOR POT VINES.

WOULD draw attention to the accompanying section of a Vinery wherein some 20 years ago I used to fruit upwards of 70 pot Vines yearly, commencing to cut fruit in April. The sorts were Black Hamburg, West's St. Peter's, Black Prince, White Frontignan, Black Frontignan, Grizzly Frontignan, White Muscat, Canon Hall Muscat, Kempsey Alicante, Black Morocco, Chasselas Musqué, and Chaptal. The house in question had Vines well established in an outside border. By a manœuvre in the front lights these were easily turned out-of-doors, and tied to stakes along the front of the house, and in this position they rested until the early pot Grapes were ripe, when the Vines

were cut with the bunches thereon, and hung up in a cool fruit-room ; and the established Vines, which often, according to the season, began to show their bunches as they lay outside, were taken in. As long as I grew pot Vines, I had yearly two crops of Grapes off this house.

Although the Vines were grown in pots, they were not fruited in pots, the pots being required for next year's succession plants. By referring to the wood-cut, it will be seen that a wooden trough ran along the front part of the house, and another half-way up the rafter; these troughs were 17 in. wide and 22 in. deep. The pit in the middle of the house was filled with fermenting materials, and contained pots plunged to their rims. The temperature of the house was kept



low until the roots or spongioles began to move round the sides of the pots. In a short time the eyes began to swell, and by keeping them perfectly level at this early season, they were induced to break with the utmost regularity, giving a bunch at every eye. Rich turf'y soil, mixed with fresh horse-droppings, aired and warmed in the pit, previous to planting out the Vines, was used to fill the troughs. The troughs being well drained, and a layer of sods placed over the drainage, we began at one end to plant out the Vines, carefully turning them out of their pots, packing them as they came out pretty closely to each other, filling in round the balls with the above-mentioned rich soil, and at the same time ramming the soil perfectly firm, both with the hand and with a wooden rammer, so that it might retain the waterings to a certain extent. The Vines planted in the lower

trough reached up to the second trough, or the middle of the rafter ; while those planted in the upper trough went to the top of the house, so that the entire roof was filled with canes about 15 inches apart. If proper attention is paid to the breaking of the Vines before they are tied up to the wires, such a house cannot fail to furnish a crop of fruit to cut from and come again.

I well remember my first attempt to fruit pot Vines on the above principle. I found the Black Hamburgh to be the best for pot culture ; the Frontignans next, while the Chasselas Musqué was a sure fruiter, generally rich in flavour, and seldom cracked under this system of cultivation. The larger sorts I discarded after my first year's experiment. As to bottom-heat, I believe they had all that they required from the temperature of the house. They were watered plentifully with liquid manure until ripe. I strongly recommend the above system, properly carried out, where quantities of Grapes are required early. There is no trouble with top and bottom heat, as in outside borders, no risk of starving or overheating the roots ; and when the Grapes are cut the Vines can be thrown away, and the succession lot brought from another department to be ripened off for next year's crop. One of the principal features is to get the canes ripe early, and rested previous to forcing. With the buds well up, I have found from later experience that it is only loss of time beginning with too low a temperature,—if the fruit is in embryo, it will come. One particular must be strictly attended to,—the canes must be got to break regularly when first introduced into a high temperature. Now, as the sap will naturally flow to the highest part, I have found that tying the canes to a straight rod, and keeping them perfectly level, gives the best chance of securing a regular break ; afterwards they can be moved to any required position.—J. MILLER, *Worksop Manor*, in *Gardeners' Chronicle*.

NOVELTIES, ETC., AT FLOWER SHOWS.

THE meeting of the Royal Horticultural, on May 4, was termed a "Rose and Auricula Show," and certainly the display made by the Roses was remarkably good. The advent of Messrs. Veitch and Sons, as exhibitors of the Rose grown in pots, deserves to be recorded here, and it was said of their plants that they "were a perfect feast to the lovers and admirers of Flora's Queen." So varied were they, that they served to abundantly illustrate the fact that almost all the Hybrid Perpetual Roses are suitable for forcing. Such varieties as *Alfred Colomb*, *Madame la Baronne de Rothschild*, *John Hopper*, *Marie Baumann*, *Horace Vernet*, *Maréchal Vaillant*, *Beauty of Waltham*, and *Fisher Holmes* were particularly fine. *Auriculas* were not numerous, but, seeing that Mr. Turner was the leading exhibitor, the quality of the flowers was remarkably good ; a First-Class Certificate was awarded to Mr. Turner for *Omega*, a white-edged seedling, having a clear white paste, and a ground-colour of black-purple, slightly edged with white ; pip large and stout. The following *Alpine Auriculas*

from the same exhibitor also received First-Class Certificates :—*Monarch*, *Selina*, and *Black Prince*, all three having the ground-colour of a rich, dark mulberry, and forming good additions to these beautiful flowers. *Clipper* and *Etna*, two striking flowers, received Second-Class Certificates.

A white-edged *Variegated Pelargonium*, named *Avalanche*, from Mr. William Paul, a good companion to Waltham Bride, with the flowers perhaps a little whiter, received a First-Class Certificate. Both of these are new silver-edged varieties, of dwarf, bushy habit, and produce numerous trusses of white flowers, so that whether allowed to bloom or denuded of their flowers, a good surface of white will be presented. Another of Mr. C. Noble's early-blooming race of *Clematis*, named *Lord Londesborough*, received a First-Class Certificate. The flowers have a deep blue ground-colour, banded with bronzy-red; and have, in common with the several varieties of this strain, a somewhat slender but very free-blooming habit. *Viola lutea major*, from Mr. Robert Parker, of Tooting, the finest form of *V. lutea grandiflora* yet seen, received a First-Class Certificate; the flowers are of a deep yellow hue, large, and very freely produced. *Reseda odorata eximia*, shown by Mr. F. Parsons, of Brighton, a large-flowered Mignonette, the individual blooms of which are of great size, received a First-Class Certificate also. This is a fine variety for pot-culture, and the flowers are highly fragrant.

The bi-monthly meeting of the Society, held on May 18th, had as its leading feature *Ericas* and *Pelargoniums*. There were a good many plants of the former, and, as a general rule, the smallest were the best flowered. The most effective kinds were *Erica magnifica*, *grandiflora*, and *coccinea minor*, all varieties of *E. ventricosa*; *E. Lindleyana*; *mutabilis*, *Victoriæ*, *Candolleana*, *eximia superba*, and *aristata superba*. Show *Pelargoniums* were pretty good, but the six Fancy varieties shown by Mr. Windsor, gardener to J. R. Ravenhall, Esq., were perhaps some of the best ever seen, being large in size, and superbly grown and bloomed. The varieties were Mrs. Ford, Lady Craven, Madame Sainton Dolby, Godfrey Turner, Roi des Fantaisies, and Ellen Beck. Generally, the Zonal *Pelargoniums* were even grotesquely-trained plants, tied down as flat as possible to wire trellises, and at the highest point not more than 10 in. or 12 in. above the pots. Such a style of training is but a burlesque of plant cultivation, and deserves condemnation. Very different indeed was a group of *Clematises* from Mr. C. Noble, Bagshot, most superbly bloomed; and a very fine strain of dwarf *Herbaceous Calceolarias*, from Mr. James, Isleworth. There was also a fine lot of cut *Tulips*, from Mr. C. Turner, Slough.

A brilliant-coloured *Azalea*, named *Roi d'Hollande*, from Mr. C. Turner, received a First-Class Certificate. The flowers were of a rich salmon-scarlet hue, stout, and of good form, and freely produced. The double-flowered *Hydrangea stellata flore-pleno*, from Messrs. Paul and Son, Cheshunt, was awarded a First-Class Certificate; the plant was small, and the flowers of a pale pink hue, and very pretty. Two capital *Alders*, good additions to these useful hardy

deciduous trees, were shown by Messrs. Veitch and Sons. To one of them, *Alnus glutinosa rubronervia*, a First-Class Certificate was awarded ; it had olive-coloured leaves, tinted with copper, and reddish leaf-stalks. The other, named *Alnus glutinosa aurea*, had golden leaves, and looked very pretty ; this latter had already been certificated.

From Sion-House Gardens came a patch of *Pyrethrum Tchihatchewii*, which has been recommended as a substitute for grass in dry situations, but from its coarse appearance it seemed scarcely likely to be grown on well-kept lawns. It might be very useful to cover rock-work, and possibly would grow in shady places under trees, where the grass becomes of weak growth. It is also said to be useful as fodder for sheep.—R. D.

THE DUKE OF ARGYLL'S TEA TREE.

 REALLY, there is no accounting for the odd names given to plants. This one in particular seems to be pre-eminently unmeaning, for the plant, *Lycium barbarum*, belongs to a poisonous genus, and never could have been used as a Tea ; indeed, so far as its virtues are concerned, it may be set down as of no known service to man, for its wood amounts only to wands, and all decoctions of its roots, or leaves, or flowers, or fruits are only evil, and that continually.

Not so, however, is it with the shade afforded by this quick-growing shrub. That virtue is not to be lightly spoken of ; and it has the merit of being a determined grower, and that under great difficulties, and on soils of all sorts. I remarked it some time ago at Blackpool, in Lancashire, climbing the walls of the house where I lodged, and I looked in vain for a leaf of any other tree or shrub that had braved the sea breeze. This, however, stood alone, and bore up sturdily against the high winds and the sea spray ; and I would particularly recommend it to the Blackpool people, to lessen the glare of their brick buildings by something leafy and green. The plant is easily propagated, and is always to be had cheap ; indeed, in good soil it becomes troublesome, and gets the name of weedy. The way in which the foliage of this plant hangs makes it throw the rain off almost as effectually as a roof of thatch, for the leaves are long, narrow, and thickly set upon the twigs, and once the stem has attained the top of the arbour, the spray or twigs will weep gracefully on all sides. It is, therefore, admirably adapted to form blinds to windows or doors-porches, screens to ash-pits, and the like ; and with the help of a few wall nails, it can be made to cover the face of a large surface of brick wall in a very short time. When it grows rank it is not so elegant as when it grows slowly. The corridor style of growth suits it best, where it can run up a brick wall, and hang over a pathway, one side being of props. It is a bad neighbour to other plants or climbers, as it exhausts the soil and chokes the foliage. It is always free from insects, and looks healthy and well when Roses are mildewed, and grub and greenfly have done their worst.

It is propagated by cuttings, by layers, and by dividing the roots, as well as by seeds. It succeeds best when transplanted in the last two months of the year, agreeably to the old adage that if you transplant a tree or shrub before Christmas you may *tell it to grow*, but if after Christmas, you must *ask it to grow*.
A. FORSYTH, *Salford.*

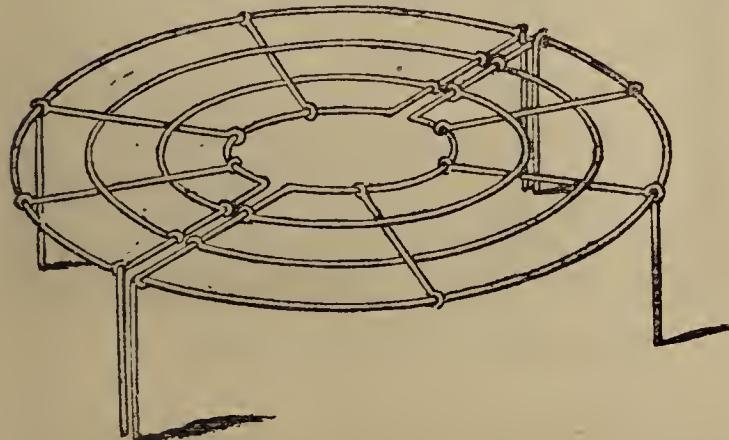
GARDEN GOSSIP.

HE arrangements for the Horticultural division of the annual International Exhibitions, which are to commence in 1871 at South Kensington, are now receiving the attention of the officers of the Royal Horticultural Society, in whose hands mainly the management of this division is to rest. We believe it is intended that there shall be bi-monthly exhibitions of Horticultural objects, partaking very much, in fact, of the character of the excellent and highly-varied shows of the present season. These exhibitions are, however, to include and be supplemented by special prizes for various subjects, which prizes are to be offered at certain of the meetings for competition amongst foreign exhibitors only; while such arrangements will be made as will admit foreigners to compete for the Society's Certificates offered for new plants at all the meetings. Thus far the International shows may be expected to represent augmentations of the present South Kensington meetings, but another feature is to be added, and one which affords to nurserymen and florists a special opportunity of advancing their interests. This is to consist of a permanent exhibition, in which the exhibitor is to take and fill to the best advantage for a given time—the whole period from May till October, or a part thereof—such a portion of the available space as he may find it convenient to undertake to occupy. We look for further details shortly.

— At this season, when the Strawberry crop is approaching maturity, the utility of such a contrivance as the *Paxton Strawberry Crinoline* may readily be

tested. Its object is to keep the fruit of the Strawberry elevated above the soil, and while thus preserving it against dirt, damp, and vermin, to facilitate the ripening process. The Crinoline forms a kind of wire table 16 in. in diameter, made of concentric rings, and elevated on legs a few inches above the ground; and is made in two semicircular pieces, so as to fit neatly together, with the plant in the centre. The whole is galvanized after being put together, and in this way is made quite firm.

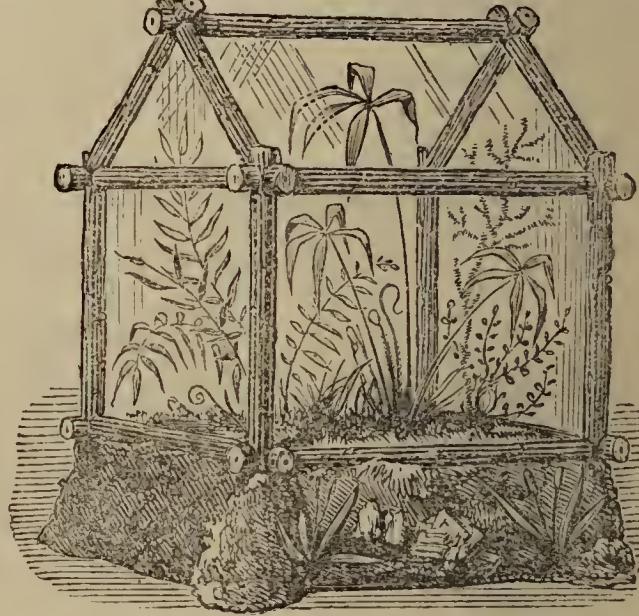
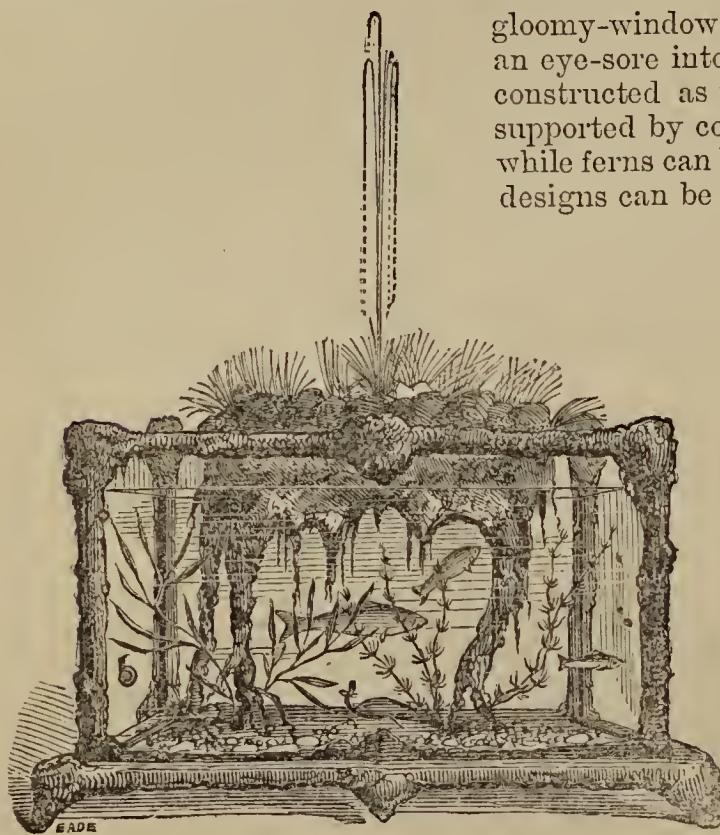
— *The Fruit Prospects* in North Nottinghamshire are promising. Rain fell at Welbeck on the 12th, 13th, and 14th ult., to the amount of nearly an inch, and with the increased heat, vegetation has since made rapid progress. Although Nottingham is generally considered one of the coldest counties in the midland district, the frosts in May were not so severe as in the south, for on the 4th ult. the freezing-point was only reached, when near London 12° of frost were registered. All the small hardy fruit, such as Currants, Raspberries, Gooseberries, and Strawberries, are safe, and Mr. Tillery adds, "I have never before seen the Apricots, Peaches, and Nectarines set so thickly, and this on the open walls, without protection of any kind. On thinning the fruit off an Apricot wall after the glass lights were taken off, I measured at least four pecks of thinnings, and this without reducing the number so low as it will have to be made at another thinning. The Pear, Plum, and Cherry bloom has been abundant, and well set for a great crop. Apples are only partially covered with blossom-buds here this year, some sorts, such as Lord Suffield, Keswick, Manks Codling, and others, are laden, whilst a great proportion of other varieties are bare of bloom. At the beginning of April the season was at least a month later than last year, and the weather



all through the month was cold and dry, and did little to forward vegetation. May commenced with a showery day, and thunder at 4 p.m., but dry days and cold east winds again set in, which lasted till the 11th. We may now hope that with increased heat and moisture all crops will be benefited, and that a fruitful season will yet be the result."—Mr. Saul reports from West Yorkshire:—"We have had a long continuance of cold northerly winds, but no frosts to do any material injury. On the 3rd of May the thermometer registered only 3° of frost, and on the 4th only 4°. Fruit of every kind will be very plentiful in this part of the country. Apricots, Peaches, and Nectarines have set very well. Pears and Cherries are also setting well. Plums have been very full of fine bloom, and I think will stand. Apples are now (May 14) very beautiful; the flowers are large and fine, and the crop will be most abundant. Bush fruit is very abundant. Everything is very late, but the rains we have had during the last few days have wonderfully invigorated everything. We only want a little warmth and sunshine now, and things would soon look most cheering."

— WE noticed at the recent exhibition at South Kensington the new *Rustic Plant-Case*, and also an *Aquarium*, of which the accompanying figures give representations. Such cases are extremely useful for the enlivening of

gloomy-window prospects, and afford a means for converting an eye-sore into an object of interest. The Fern Case is so constructed as to form an aquarium at the bottom, rocks, supported by columns, forming below pretty caverns for fish, while ferns can be planted above. The cases according to these designs can be made of any size. Those we refer to were



exhibited by Messrs. Dick Radclyffe and Co., of High Holborn, who have obtained Certificates for them.

— THE growers of specimen Pot-plants will be glad to learn that *Peat earth*, carefully selected and divested of sour or crude matter, and packed in casks for safe transport, can be had of Mr. Epps, of Lewisham. A sample of this peat, which we have had in use, is of excellent quality.

— UNDER the name of *Primula Couttii*, or Abyssinian Primrose, the Messrs. Veitch have recently exhibited at one of the meetings of the Royal Horticultural Society a handsome Primrose, with tufted root, irregularly dentate oblong-lanceolate leaves 8 in. to 10 in. long, and covered with white mealy powder, especially on the lower surface. The flower-scape rises 18 in. in height, and bears two or three whorls of a dozen or more flowers, the whorls provided with leafy bracts, the lower ones being the largest, and the flowers yellow, salver-shaped, with a tube nearly 2 in. long, and a limb divided into five roundish notched lobes. This plant proves to be the *Primula simensis* of Hochstetter, a variety of the old *P. verticillata*, and will therefore bear the name of *P. verticillata simensis*. It is a very nice addition to our garden flowers.



J. N. Fitch, nsp.

Brodiaea coccinea.

BRODIÆA COCCINEA.

WITH AN ILLUSTRATION.

OR the opportunity of presenting to our readers the accompanying figure of a beautiful new hardy bulb, we are indebted to Mr. W. Thompson, of Ipswich, by whom it has been imported from the Trinity Mountains, California, and by whom it was exhibited at South Kensington on the 8th ult., when it received the well-merited reward of a First-Class Certificate from the Royal Horticultural Society's Floral Committee.

This *Brodiaea coccinea* produces a flower-scape of from two to three feet in height, and accompanied by channeled leaves of nearly the same length. The flowers are nodding, and borne in a terminal umbel of from five to twelve, or even fifteen to twenty, when established and vigorous. The flowers themselves are about one and a half inch long, on pedicels nearly an inch in length, and are ventricosely cylindraceous and obscurely ribbed, the tube for about an inch at its base being of a rich magenta-crimson, while the upper part and the six recurved limb segments are externally pea-green, somewhat paler internally. The three exterior petaloid stamens are greenish-white, much broader than the perianth segments, and forming a kind of coronet at the mouth of the tube. The three perfect stamens and the trifid stigma are about as long as the perianth.

Professor Wood has described this plant in the *Proceedings of the Academy of Natural Sciences of Philadelphia*, under the name of *Brevoortia Ida-Maia*; and Professor Asa Gray, in the *Proceedings of the American Academy of Arts and Sciences*, has made the following remarks thereupon:—"Professor Wood has naturally characterized this very striking and handsome plant as a new genus, to which, indeed, it has as good a claim as *Dichelostemma*, or perhaps even *Stropholirion*; but however *Brodiaea* be limited, it cannot well fail to include this species, which has wholly the structure of the typical *B. grandiflora*, only that the tube of the flower is proportionally longer, the scales answering to the other set of stamens much broader, and the colour peculiar in the genus, although not unlike that of *Stropholirion*."

As regards its cultivation, we learn from Mr. Thompson that it appears to be perfectly hardy when planted deep enough to be beyond the reach of frost, and, moreover, that when planted in a clump of five or six roots it has a most striking appearance. With him it has hitherto been grown with very good success in loamy soil, but it should be well drained. The flowering season is May and June. It promises to increase freely, and unlike some of the allied genera, its bulbs do not dwindle, but with ordinary care increase in vigour annually. From the returning favour which cultivators seem to be extending towards hardy plants, we shall be much surprised if this new *Brodiaea* does not become an especial favourite with those who elect to make collections of that most interesting though long neglected group,—the hardy bulbs.—M.

ROSES FOR HEDGES, ETC.

PERMIT me to back up Mr. Tillery's admirable remarks upon the beauty and usefulness of such charming boundary lines where room can be found for them. Not that Mr. Tillery's receipts for beauty need to be endorsed by me ; his authority is good and sufficient in all matters of culture and taste. But I have a great love for such hedges, though I have not yet been able to introduce them here, for it happens that our *forte* lies in archways, not hedgeways ; but I have seen some elsewhere, and they are most ornamental and useful.

The first I ever saw was at Shrubland Park, near Ipswich. The late Mr. Beaton was walking round with me, full of his botanical and cultural quips and cranks, and suddenly we came upon a semicircular Rose hedge, forming the back of a sunk Verbena garden on grass. It was formed wholly of the rose Gloire de Rosomène ; from top to bottom it glowed with large semi-double roses, only variegated with the clean bright green leaves, and its elegant thin buds, in all stages, from mere narrow lines to bursting flowers. They were set in a frame of cloudless sunlight, and the rose hedge seemed positively illuminated. It was perfectly dazzling in its brightness. Beaton, who was eagle-eyed to note effects, gave one of his most significant smiles, as he saw my pencil and book instantly at work. Yes, he remarked, "Is it not a glory ?"

I have never seen this Rose so gloriously bright since, nor anything more striking in the way of hedges. I have tried it as a background in ribbon-gardening with but indifferent success. But there is no question that an immense deal could be done with Rose hedges, both as ornamental and useful objects. The first is too obvious to need much further remark ; but it might be worth while on gentlemen's estates, and especially in regard to inside boundary lines or fences to plantations and shrubberies, to intermix the Noisette, Ayrshire, or Boursault, or such free-growing good roses as the Banksian, Gloire de Dijon, Maréchal Niel, Climbing Devonensis, Lamarque, Céline Forestier, &c., among White-thorns, Sweet-briers, &c., that are used for hedge plants. Occasionally, round home woods, the fences are left wide and rough for game. What cover could be better or safer for the birds than large tangled masses of roses. The effect from a distance would be magnificent in the extreme, while near at hand their beauty and sweetness would bear the closest inspection. And where gardens, as is often the case, are bounded by woods, why not furnish the debateable ground between the two with tangled irregular groups, or at least wide fences, of roses ? Let the queen of flowers lay its hand upon both garden and woody wilderness, and bind them together with a climbing wreath or tie of roses. They might graduate in quality and height by degrees as they receded from the garden, until tall rampant Ayrshires and Sweet-briers grasped and clothed the trees of the forest. Such masses of Roses would display an exuberance of floral wealth, and bring in such a revenue of sweetness, as has never yet been reaped from fragrant Roses.

Roses planted thus would create a new effect in landscape scenery. The greatest want of our decorative art in the present day is breadth ; the second, which grows out of the first, is naturalness. We can grow Roses well, but the effective grouping, and the true place of Roses in landscape art, have yet, I believe, to be learnt, or at least practised.

But Rose fences are useful, as well as ornamental. What gardener does not regret having to cut so many roses from where they are most needed for effect ? The love of flowers in our dwelling-houses has outrun our enlargement of the area, or means of culture. The demand is nearly always on the heels of our supply, not seldom it treads upon its toes. Dinner-table decorations, bouquets, the floral furnishings of drawing-rooms, churches, ball-rooms, &c., all draw from the garden, and tend to drain it dry. Under such demands, roses and other flowers disappear like snow in summer, leaving scarcely a petal behind. But no demand would be likely to strip a whole hedge of roses, or clear such tangled masses of beauty. And variety and quality could both be provided, as suggested by Mr. Tillery, by simply working perpetuals on to the strongest shoots of the common varieties. From such sources we could cut and come again, without any fear of greatly marring the effect or exhausting the supply. And then what a rich harvest of rose-leaves could be gathered for distillation into liquid sweetness, or for preservation in pickled jars full of divinely fragrant pot-pourri !—D. T. FISH, F.R.H.S.

THE ROYAL NATIONAL TULIP SHOW.

HIS Show was held at Cambridge, on the 25th of May. There was no lack of interest manifested by the growers, for they appeared in strong force. All the classes were well filled, and the flowers generally were of very fine quality. Notwithstanding the counter attraction of the Exhibition of the Cambridge Horticultural Society, the tent, solely appropriated to the Tulips, was crowded by the general company ; in fact, the visitors seemed to find quite a new enjoyment in inspecting the gorgeous Tulips, which, though a little undersized, owing to the cold wet winter and trying spring, had a great deal of refinement about them. The premier prize for twelve Tulips, four of each division, was taken by Mr. S. Barlow, Manchester, with a very fine and pure lot of flowers, consisting of :—*Bizarres* : Garibaldi and Royal Sovereign, feathered ; Sir J. Paxton and Polyphebus, flamed. *Byblæmens* : Martin's 101 and Talisman, feathered ; Duchess of Sutherland and Bacchus, flamed. *Roses* : Mrs. Lea and Charmer, feathered ; Aglaia and Rose Celestial, flamed. Very near to this stand came that of Mr. Richard Headly, whose flowers were large, and generally finely marked, but a trifle past their best, the colours having begun to run. Mr. Headly had :—*Bizarres* : Demosthenes and Richard Headly, feathered ; Prince of Wales and Dr. Hardy, flamed. *Byblæmens* : W. E. Gladstone and Mrs. Pickerell, feathered : John Kemble and John Thorniley, flamed. *Roses* : Sarah Headly and Queen of Roses, feathered ; Semiramis and Circe, flamed.

In the remaining class for twelve flowers, the Rev. S. Cresswell, Radford, staged the following, a very fine lot of flowers :—George Hayward and Storer's Seedling (feathered), Sir J. Paxton and Dr. Hardy (flamed), bizarres ; Nepalese Prince and Lord Denman (feathered), Duchess of Sutherland and Adela (flamed), byblœmens ; Vicar of Radford and Heroine (feathered), Aglaia and Heroine (flamed), roses. Singular to state, out of seven competing stands, not less than three were disqualified, through containing too many flowers of one division. The best six flowers came from Mr. Barber, of Derby, who had Royal Sovereign (feathered), and General Lee (flamed), bizarres ; Mrs. Pickerell (feathered), and First Rate (flamed), byblœmens ; Heroine (feathered), and Rose Celestial (flamed), roses. The best three feathered Tulips, shown by Mr. Lea, of Leigh, consisted of Sir J. Paxton, bizarre ; Adonis, byblœmen ; Heroine, rose. The best three flamed flowers were Dr. Hardy, bizarre ; Lord Denman, byblœmen ; Triomphe Royale, rose. The premier feathered flower was a magnificent bloom of byblœmen Mrs. Pickerell, shown by Mr. S. Barlow ; the best flamed flower, an equally fine flower of bizarre Sir J. Paxton, shown by Mr. Barber.

A look through the various stands gave the following flowers as among the finest shown on this interesting occasion :—*Bizarres* : Lord Byron, J. Sanderson, George Hayward, and Royal Sovereign, feathered ; Lord Palmerston, Ajax, Everard, Sir J. Paxton, very fine ; Polyphemus, Dr. Hardy, and Richard Headly, flamed. *Byblœmens* : Mrs. Pickerell, very fine ; W. E. Gladstone, a fine flower, raised by Mr. R. Headly ; Talisman, very fine ; Exile, Victoria Regina, Adonis, Lord Denman, and Violet Amiable, feathered ; Duchess of Sutherland (Walker), Queen of the North, John Kemble, and Princess Royal, flamed. *Roses* : Mrs. Lea, very fine ; Sarah Headly, Vicar of Radford, very fine ; and Heroine (some of the flowers of this variety, very numerously shown, were very beautiful indeed), feathered ; Prince of Wales, very fine ; Mary Barber, very fine ; Aglaia, Rose Celestial, Triomphe Royale, flamed.

In the matter of Breeder Tulips, Mr. Headly distanced all competitors. Some of the flowers were of singularly beautiful colours ; and could some of the rich violet-magenta hues be transformed to the useful class of early single bedding Tulips, they would create quite a floricultural *furore*. Altogether, this was a most successful gathering, the Northern growers especially being in strong force.—*Quo.*

LADY'S SLIPPERS.—CHAPTER IV.

UR present illustration represents a species of comparatively recent introduction to our gardens, a dwarf-growing and a free-growing plant, very distinct from any others, and one which should be included in every collection. It is called *Cypripedium concolor*, and we are indebted to the Messrs. Veitch and Sons for the specimens figured, which bloomed in February last.

The plant is of low, tufted habit, stemless, with distichous leaves, spreading horizontally, oblong-obtuse, four or five inches long, keeled, leathery, unequally

emarginate-mucronate, dark green, irregularly blotched with grey, the under-side thickly covered with purple spots. The hairy purplish scape is about two inches high, supporting one or two flowers, which issue from a short, boat-shaped spotted bract. The flowers are straw-coloured; the dorsal sepal is roundish, concave, emarginate, an inch wide, the anterior one smaller, the petals oblong-obtuse, all spotted with small crimson dots, and ciliated; the lip is narrow, oblong-obtuse, the upper edge nearly equally folded in, leaving an open mouth.



The sterile stamen is shining, yellow, subcordate, cuspidate, with a central groove, and a boss on each side, the upper margin ciliated. This species is a native of Moulmein, where it grows on limestone rocks, and we owe its introduction both to the Rev. C. Parish and Lieutenant-Colonel Benson, both of whom have been most successful collectors of orchids in the Burmese and Tenasserim provinces.

But few cultivators of this plant have hitherto succeeded in growing it luxuriantly, and many, disappointed with its appearance under bad treatment, have pronounced it to be a very inferior species, not worth cultivation. Under proper management, however, it becomes an exceedingly beautiful and distinct plant, well deserving every attention. As before remarked, the plant is found

in a state of nature growing upon limestone rocks, and as it is a well known fact that most of the plants found upon this particular formation succeed but indifferently well in any other soil, limestone should be procured for it, and with this, and an addition of charcoal and a few potsherds, the pots should be filled, surfacing with a little live sphagnum moss, so as to give them a neat and finished appearance. When potted in the manner previously described, an unlimited supply of water may be given during the growing season with considerable advantage. This element must, however, be gradually withheld as the days shorten and the sun's power decreases. Little more remains to be added respecting its cultivation. A temperature of from 75° to 85° suits it admirably during summer, but in winter the thermometer should be allowed to fall to about 65° , or even lower during the night. It begins to bloom in the late autumn or early winter months, continuing on until February or March, and thus it forms a valuable acquisition for the orchid house or stove during the least congenial months of the year. Thrips are liable to injure and disfigure the plants if not closely watched, therefore the leaves—at the base in particular—should be frequently washed with warm soap-and-water.—BENJAMIN S. WILLIAMS, *Victoria Nursery, Upper Holloway.*

GROWING THE NEW DWARF EARLY MARROW PEAS IN POTS.

HAVING grown a succession of the Early Dwarf Peas in pots this spring, I am now enabled to name the varieties I have found the best adapted for early forcing. All the tall-growing early sorts, such as Ringleader, Sangster's No. 1, Emperor, and Taber's Perfection, I have discarded for the last two seasons, as some of the new dwarf marrows are nearly as early, besides producing larger pods and better-flavoured peas. The following are the sorts I have grown this year, namely:—Beck's Gem or Tom Thumb, Turner's Little Gem, Multum in Parvo, Nutting's No. 1 Dwarf Wrinkled Marrow, and Laxton's Alpha. They were all grown on the front border of a glass-covered wall, and some of the dwarfest also in low pits, and they furnished a supply of nice peas from the beginning of May until the second week in June. Beck's Tom Thumb is the earliest in podding and ripening. Turner's Little Gem is nearly as early. Multum in Parvo grows a little taller than the above sorts, but produces larger pods of excellent flavour, is a great bearer, and is only a few days later in coming in. Nutting's No. 1 Wrinkled Marrow is a new pea, now grown by me for the first time in pots, and it has proved an acquisition, being an excellent succession to the very dwarf marrows when sown at the same time; it grows about two feet high, with large, well-filled pods of good flavour. Laxton's Alpha, the new pea that was sold at such a tremendously high figure per quart, has proved with me an excellent productive variety when grown in pots; it was only sown in the middle of February, and it produced pods fit for picking

in the beginning of June. It grew with me about $3\frac{1}{2}$ ft. high, was a good cropper, with fine, well-filled pods, and peas of excellent flavour, and is decidedly a great acquisition amongst second early marrow peas.

Beck's Tom Thumb and Turner's Little Gem, that came in first in the beginning of May, were sown in pits in December, and successions of all the other kinds were sown in January and February, so that plenty of dishes of fine young peas were had for six weeks, and until the open-air ones came in. I have no doubt that if Beck's Tom Thumb and Little Gem were sown in pots, in low pits, in October or November, good dishes of peas could be had from these varieties in March and April.—WILLIAM TILLERY, Welbeck.

TREES AND SHRUBS FOR ENGLISH PLANTATIONS.

SO much of the beauty and interest of our gardens and pleasure grounds is due to the judicious use of ornamental trees and shrubs in dressing-up or furnishing them, that any assistance which may be forthcoming in regard to information concerning the objects themselves, especially if conveyed in such a way as to become an aid in making selections suitable for different situations and different objects, must always be welcome. New subjects, in this department, as in others, are continually appearing, so that the old records—Loudon's *Arboretum*, and *Encyclopædia*, for example—become obsolete; and hence, since all available information concerning these newer trees—the debatable ground of sylviculture—is of importance to those who are about to plant, or who are likely to be occupied in the embellishment of their grounds, a new book on the subject such as that just issued by Mr. Mongredien* comes in most opportunely.

The vast extent of the resources in shape of shrub and tree which are available to planters of the present day, is seldom appreciated by those who have grounds to embellish, except it be in the case of those who are professionally engaged in this occupation, and even they are somewhat too prone to suffer their ideas to run along the old grooves. The available materials for grouping, as Mr. Mongredien observes, "have never been utilized to nearly the extent of which they are susceptible. Like the colours on a painter's palette, by the selection and combination of which he makes his canvas glow with beautiful forms and harmonious tints, so the infinite variety of outline and colour in trees affords scope for so arranging them as to produce most striking results, both in home views and distant landscapes." It is to help to bring about this result, that the work now before us has been written.

The book is divided into two parts, the first and larger half consisting of an alphabetical descriptive account of some 600 or more trees and shrubs which are considered desirable for open-air planting; and the second half, classifying them into groups, exhibiting particular features or adapted for particular purposes.

* *Trees and Shrubs for English Plantations.* By Augustus Mongredien. With Illustrations. London: Murray.

We presume the author in his first selection has been guided by his own direct observation and experience, since there are omissions for which it is otherwise difficult to account,—*Clematis montana* to wit, one of the finest and freest-growing species of its genus, and a really useful and ornamental free-blooming plant as a hardy climber. There are other omitted species of this genus quite worth recording; while of *Cotoneaster* the selection is also meagre. The choice varieties, too, of well-known species are too frequently altogether ignored—we mean



ABIES NOBILIS.

such fine and undoubtedly first-class plants as the *Cupressus Lawsoniana erecta viridis*, described at page 91. Hence we cannot report that Mr. Mongredien has exhausted, or even nearly worked out the subject, but putting aside these deficiencies, he has, no doubt, set before us a good selection of useful material, with which planters would do well to make themselves more familiar.

The second portion of the book, where we find the admitted species classified in various ways, will doubtless be the most practically useful. Here the plants are grouped in some thirty or more lists, according to the height attained, to

peculiarities of foliage, whether of shape, size, or colour, to the season of blooming, or the showy or fragrant character or the colour of their flowers, the edible-fruit bearers, the ornamental fruit-bearers, timber-producers, species of peculiar habit of growth, species adapted for particular uses, and so on. As an illustration of the utilitarian part of the book, we quote the following brief section on "Species thriving in the Smoke of Cities" (p. 306).

"Of course the expression 'thriving' is to be understood as merely comparative. No plant can either grow or flower so well in the impure atmosphere of large towns as in the open country. But whereas most trees and shrubs dwindle away and die under the mephitic influence of air surcharged with carbon, etc., there are a few that will withstand it tolerably well. The list is not a long one, but it may be hoped that further experiments will be made with a view to extend it:—

Aesculus Hippocastanum.

Ailanthus glandulosa, a large tree, with beautiful leaves, much used for shade in Continental towns, and amongst other places on the boulevards in Paris.

Ampelopsis hederacea, the Virginian creeper.

Amygdalus communis.

Artemisia Abrotanum.

Aucuba japonica.

Catalpa syringæfolia.

Cydonia japonica.

Cytisus Laburnum.

Ficus Carica, the Fig tree, occasionally found in out-of-the-way nooks, courtyards, and close areas, not fruiting, but freely producing its beautiful large leaves.

Hedera Helix.

Jasminum officinale, the Jasmine, whose introduction dates earlier than our earliest gardening records.

Ligustrum vulgare, and probably *lucidum*.

Paulownia imperialis.

Phillyrea media.

Platanus occidentalis, the Plane, which of all large trees is probably the one which answers best for city cultivation, owing to its smooth leaves and ever-peeling bark [though the tree Mr. Mongredien evidently refers to is the *P. acerifolia*].

Quercus Ilex.

Rhamnus Alaternus.

Rhus typhina.

Ribes sanguineum.

Robinia Pseud-Acacia.

Viburnum Opulus."

—to which might have been added Rhododendrons, especially in situations where they can be well washed and sufficiently watered; *Wistaria sinensis*; and the Yuccas, a family which, by the way, is very inadequately treated of. The book is well printed, and contains some excellent illustrations, one of which we here introduce through the courtesy of the publisher. It would be more useful if rendered more complete, as we trust to see it in another edition.—M.

THE FRUIT CROPS OF 1870.

JUDGING from the reports, it may be concluded that good crops of fruit are pretty general throughout the country. The crops of all kinds of fruit, in this part, are in general very good; there is not a failing crop of any kind of fruit, so far as I can ascertain: all are abundant. This is a very pleasing state of things,—the result of the general failure of the crops last season, and of the hot dry summer, which thoroughly ripened the wood. Had our fruit crops been a failure this year, we, no doubt, should have heard that it was caused by the frosts at the beginning of May, which, we learn, did some damage to the blossoms in the neighbourhood of London; the crops, however, being good in

general, we shall not hear much of the late spring frost, but the abundance of the crops will be attributed to the lateness of the season, and so forth.

Now, there is no use in blinking this matter, but the plain truth is, that bad crops are in general owing to bad management, or no management at all. I have so often repeated my experience in the FLORIST on this subject, that I do not intend to go over it at present. If fruit trees were properly managed they would not be allowed to bear heavy crops, which exhaust them, and render a season of rest necessary to store up matter for another crop. Trees that are only allowed a reasonable crop, very rarely miss bearing a crop. I would suggest to those interested in the matter to try the following experiment, namely, to remove the whole of the fruit off 6 or 8 trees of Pears, Plums, and Apples, and to leave the entire crop on 6 or 8 trees of the same kinds and age. What will be the result next year? Why, the 6 or 8 trees that are allowed to carry their entire crop this season will have little or no fruit next season, but the 6 or 8 trees from which the entire crop has been removed will have an abundant crop if the season be an ordinary one, and a fair crop even if the season be unfavourable. I have more than once satisfied myself on this matter. I would advise all who wish to have any fruit next season to thin their crops well now, if they have not already done so. If they neglect this matter now, they need not expect to have good fruit crops next year.—M. SAUL, Stourton.

THE FAILURE OF THE PEACH CROP OF 1869.

THREE parts out of four of the crop of 1869 were lost. How, or by what means? Mr. Webster in an able article at page 33 has explained his view of the matter, and I must say I agree with him in the practice of giving the borders several good waterings in hot, dry weather. I am confident it is a good plan, and if manure-water is used so much the better. The few Peach trees here have every season since I have had charge of them borne very good crops until 1869, when there was about half a crop. There are four trees, and three of them bore $11\frac{1}{2}$ doz. fruit; a *Royal George* had 6 doz., a *Late Admirable* $2\frac{1}{2}$ doz., a *Barrington* 3 doz., while a *Walburton Admirable* had none. In the very hot weather of 1869 I gave them four or five good soakings with manure-water, about six large water-pots full to each of the three trees. We had two manure-water tanks emptied, and at the bottom I found some six or seven barrow-loads of thick black stuff; of this I had one good load put to each peach tree, and to two apricots, forking up the soil first, spreading it all over the roots, and then covering it with some soil. The Walburton peach tree had none, and very little water, because it was making too much rank wood. So much for good watering.

In every garden where there are fruit-tree blossoms to be set there should stand, in a nice snug corner, close to the wall, at least three strong hives of bees, which, together, should contain some 12,000 or 14,000 bees. These, travelling over the

blossoms, with rough brushes on their legs, would suffice to impregnate or set the fruit. What became of the artificial camel-hair brushes at the blooming-time last year? Throughout the wet, cold, cloudy weather that we experienced, the bees could get out but very little, and thus, the flowers not being properly set, the young fruit dwindled and fell. It is no use for a gentleman or his gardener to say, "Oh, my neighbour has got bees; they will be sure to come and set the fruit." In wet, stormy weather no dependence at all can be placed on their doing so; to be of use the bees must be close at home. At this place we have three hives, and last summer we had six in the middle of the south wall, in which, when built, a hollow or niche, something like the arch or top of an oven, was made to take a rustic chair. This I got my employer to turn into a bee-house, and a capital one it makes, as with two wide shelves put across, it holds six hives well. In this position the bees have got one peach tree right and left, close at hand. From three trees, in 1869, we picked, as before mentioned, $11\frac{1}{2}$ doz., all good fruit.

In the case of orchard houses, a hive ought to have been carried into the house, and then the work would have been done in good style; but instead of that, I suppose, the top and front lights were all thrown open, allowing a cold, cutting wind to rush through, and then, as in the case of an individual sitting between two open doors, they got chilled, and after a decline came death. That, in my opinion, is the most efficient cause of the failure. Mr. Webster does not mention whether there is to his walls a projecting coping a foot wide to throw off the snow, sleet, or rain from the blossoms, nor whether he has got any of the active little creatures I have named to set the fruit. The gardener must not mind getting a prod with their dirks, occasionally: here, however, is a cure for a sting:—Immediately get an onion, cut it in two, and rub it in well; the juice will keep down the swelling.

Besides setting the fruit, bees are useful in the summer time. It is an old saying, and a true one, that many hands make light work; and a quantity of bees will gather a store of sweets, so that the gardener can take from 50lb. to 100lb. of beautiful comb and honey for his employer's table.—G. L. DRUMMOND, *Newbridge Hill, Bath.*

THE COLEUS AS A BEDDING PLANT.

CHIS beautiful foliage plant is universally accepted as a valuable addition to our materials for bedding out, and justly so, when we take into consideration its richness of colouring and general effectiveness, and the fact that it requires no especial treatment different from the generality of bedding-out plants, in which respect it differs greatly from many of those pampered pets, called sub-tropicals, which require perfect shelter from wind, and to be screened from the meridian sun to ensure their success.

The cultivation of the Coleus is so simple that there is no need of special remarks on that head. Suffice it to state that the plants should be afforded free

and liberal treatment, so as to insure a robust habit, and should be well stopped back, and gradually hardened off, the lights being altogether removed on every favourable occasion as the season advances. I would particularly impress upon the amateur cultivator the necessity of a careful preparatory hardening-off prior to planting out, for upon this will in a great measure depend the ultimate success of the plants, while failure will often result from inattention to this alone. It is necessary, moreover, not to be premature in planting out, for any sudden check at that stage will have a tendency to mar the effect for the season. As a general rule, I find it advisable to defer planting out until about the 10th of June, after which, the weather being favourable, they may with safety be committed to the beds. They should have a position fully exposed to the sun, and after planting require a good watering, and to have the surface of the beds mulched. Give them copious waterings at the roots when necessary, and avoid the frequent sprinklings so commonly practised, which do little real good, but have a tendency to bleach and mar the beauty of the foliage.

The varieties I have found to stand best, and at the same time, to be most effective, are—*Coleus Verschaffeltii* and its varieties, *aureus marginatus* and *marmoratus*; *C. Saundersii*, *C. Batemanii*, and *C. Ruckeri*. The new golden-leaved varieties are a great advance, and will become grand acquisitions for in-door purposes; but, bedded-out here, as elsewhere, they have proved disappointing. In districts subject to an excess of rain, the *Iresine* may advantageously be used in the place of the *Coleus*, with the best results.—GEORGE WESTLAND, *Witley Court*.

ON RE-POTTING THE AURICULA.

ACCORDING to the promise contained in my paper on Auricula composts, I proceed to give a few instructions on re-potting, the present being, in my opinion, the most seasonable time for this operation. Those, therefore, who have the compost in readiness by the second week in July, cannot do better than commence without delay. First of all, if the compost has been stowed away in a heap for any length of time, it should be spread out thinly for a day or so in some open place, where it can have the sun and air: it is necessary, however, to keep off rain or damp of any kind, for the drier the condition in which it is used the better. Should new pots have to be employed, they should be soaked in water for at least twenty-four hours before using; or if old ones, in which the plants have been growing, have to be again worked up, they should be soaked also, and with a brush cleansed thoroughly of all dirt and mouldy matter they may have about them. This thorough cleansing is a very important matter. In potting, all those plants which have been in their pots and in the same mould for the whole year will be best taken out, and should have the old earth shaken entirely from the roots, and then with a sharp knife the fibrous roots should be shortened, so that they can be spread out in the pots without being cramped or bent when filling in the new compost. The main tap-root too, if long, should be cut clean off

to within an inch and a half of the top, leaving just a few fibrous roots sufficient to give the plant a start in its fresh earth. Young plants or offsets which were taken off and fresh potted in early spring, might do as well if just changed into larger pots, with part of the old ball of earth about them.

As the plants are potted, they should be placed in a shady situation, and the lights should be placed over them for ten or twelve days, at the end of which time they may be taken off. Should the weather at the time be moist or rainy, allow the plants the full benefit of such rain as may fall gently upon them, but carefully guard them against thunderstorms or very heavy showers. On the other hand, if the weather should be dry without appearance of rain, take a watering-can with a very fine rose, and give them just a gentle run over with soft water. Rain-water is the best, and should be used at about the temperature of the atmosphere at the time. At first give the plants only just a slight run over, to revive them and to moisten the soil at the top of the pots ; but repeat this gentle watering every evening after sunset for a week or so, by which time the mould will have got sufficiently saturated. After that the plants may be placed out in their summer quarters, the best situation being at the back of a north wall, where they can get a little morning and evening sun. In this position the plants will keep all right—allowing them now and then the benefit of a nice shower, but guarding against and keeping off heavy or long-continued soaking rains—till the middle of October, when they will require removing to their winter quarters, where, however, they must still be allowed to be open and exposed during all fine dry weather. After November sets in, the plants should be kept tolerably dry by keeping off the rain entirely, and only just allowing them sufficient water to keep them alive. This kind of treatment should be followed up to the end of January, about which time I will endeavour to furnish a few observations on spring treatment and blooming.—JOHN HEPWORTH, *Huddersfield*.

FROSTS *versus* FRUIT BLOSSOMS.

HE effects of Frost* are in many instances very plainly presented to us, when, as with Potatos and the young shoots of the Walnut, the leaves are blackened and destroyed ; or as with Gooseberries, when the berries are seen to be blistered and discoloured, and within a day or so fall from the tree. Again, its effects upon stone-fruits—Apricots, Peaches, Cherries, and Plums—are plainly shown and pretty generally understood. The injury may be first committed on the style or pistil, yet it soon descends to the ovary, and the whole fruit rapidly becomes blackened, and is seen to be dead. One second's observation will show this,—the mere opening of the scales of the calyx, and splitting the flower, or what covers the young fruit.

In the case of the Apple and Pear, the injury which is effected through frost

* We borrow the accompanying article and illustrations from the *Journal of Horticulture*. The subject is one of much importance to gardeners, and we are glad to be able to draw their attention thus pointedly to it.

is not so apparent, and very confused ideas seem to be held regarding it. I have found, indeed, that many gardeners, otherwise well informed, have no idea whatever as to the immediate effect of frost, that is, whether their blossoms or young fruits are injured or not, until they can be pulled off easily, or they fall from



Fig. 1.

the tree. As this frequently does not happen until some weeks after the injury takes place, all traces of the true cause (and there are several others which might cause them to fall) are lost sight of.

The flowers of the Apple and Pear, whilst they are in their full beauty, as shown by fig. 1 (Apple-blossom), indeed, sometimes whilst yet unexpanded, may



Fig. 2.

be killed, and yet show no outward sign thereof to the general observer. Fig. 1 represents a healthy and perfect example of the blossom of the Apple, showing it in its perfect and uninjured state. The style, as will be observed, is in this example of its natural healthy pale-green colour. Fig. 2 represents Apple-

blossom at the same stage, and in the same condition in every part but one. The style, it is to be observed, is in this instance black. The thin black threads extend from its point right down to the ovary or embryo fruit at the bottom.



Fig. 3.



Fig. 4.

That flower is killed by frost, and yet the flower itself, the beautiful petals, and the stamens in the centre, are as lovely as ever. The vital spark, however, of the fruit which was to have been, is gone—it is dead.



Fig. 5.



Fig. 6.

Fig. 3 represents a healthy and perfect example of the young embryo fruit of the Pear as it exists in its uninjured state. The style in this instance, as in fig. 1, is still of the natural pale-green colour. A represents a cross or transverse section of the fruit in its perfect state. Fig. 4 represents a young embryo fruit of the Pear, also in section at B, showing the effects of the frost after the fruits

have been set and begun to swell. The style here, as will be again seen, is, as in fig. 2, black, and the injury may be traced to the centre of the fruit, as shown at B, which is a transverse section of the latter. Fruits like these, having black hearts, are also dead, being killed by frost.

In the case of Strawberries the effect of frost on the expanded blossoms, and it is but rarely they are injured at any other stage, is very readily apparent, and pretty generally understood by the term "black eyes." Fig. 5 represents the healthy and perfect blossom and embryo fruit (receptacle) of the Strawberry, while fig. 6, with the black centre or "black eye," has the fruit killed. It is here also only the styles and ovary that are injured, not the stamens and petals, which remain beautiful as ever, though the fruit is dead. Strawberry blossom is sometimes injured in the same way by heat or strong sunshine. It will be seen, then, that the most tender portion of the flower or fruit is the style or pistil. That is the vital part, and when that is injured in any way, however slight, the uses of the flower are at an end. The stamens are almost as hardy as the leaves, and are very rarely injured. The petals, also, which are the beauteous part, stand a good deal of rough usage; they are, however, of no benefit to the fruit. To discover when Apples or Pears are killed by frost, simply look to the pistil, which very soon shows the effect; if it is green it is well, if black then it is dead; and for further satisfaction cut transversely through the young fruit, and experience will soon teach the value of a black heart, even when accompanied by the fairest flower.—ARCHAMBAUD.

VINE BUDDING.

THIS is not a new discovery, although an attempt has recently been made to make the public believe so. I have practised this method of propagation for more than thirty years, and my instructor, then verging on three-score, had performed the operation during his gardening career. It is, therefore, very evident that Vine Budding is not a novelty.

It would be a useless waste of time to describe how the operation is to be carried out, as it is easily done, and with as much certainty as budding a Camellia or a Rhododendron. Autumn has been strongly recommended as the most appropriate season, because it will admit of proving the quality of any particular Grape the following year. This I doubt not; but the same result will follow the insertion of a bud during the succeeding winter or spring,—any time, in fact, when forcing begins; at least, such is my experience. My object, at present, is not to deal with the subject in detail, but rather to show how we may, in the shortest time, multiply to the greatest extent any approved variety of the Grape Vine by the process of budding.

Instead of following the usual practice of heading down an established plant when we desire to change the kind, and training up a single shoot only, the old rod may be budded for its entire length as successfully as if only one eye were

inserted at the bottom. The plan that I have followed is to cut off the spurs to a single eye when the Vine is pruned, and so soon as the young growths are sufficiently advanced to consume the rising sap, to insert a bud immediately underneath the spur (or anywhere else if more desirable), treating each as an individual plant. When the operation is finished, the Vine should be placed in a horizontal position, to equalize as much as possible the circulation of the sap, which otherwise will rush to the highest extremity. In the course of three or four weeks, the bud will have united, when the point of the young growth should be pinched off, and it should be entirely taken away as soon as the bud begins to move. As a security against moisture oozing in between the bud and stock it is better to use grafting-wax, or what will answer equally well, grafting-clay.—
ALEXANDER CRAMB, *Tortworth Court.*

THE GARDEN MENTOR.

JULY is usually remarkable for great heat, and occasionally for severe storms of hail and rain, which are very destructive both to the garden and farm. Among wild plants, there are many which flower during this month, and these afford an excellent opportunity to the young gardener to collect specimens, and to study them with a view to gain an insight into plant structure.

KITCHEN GARDEN.—No time should be lost in getting out the main crops of *Broccoli*, *Winter Greens*, and *Celery*, if not already done, as recommended last month. All newly planted crops must be kept well watered until they are thoroughly established, and even then, if the weather be dry, a good soaking of liquid manure, given occasionally, will be very beneficial to them. A good breadth of *Walcheren Cauliflowers* should be planted from about the 10th to the 20th of the month, for the winter supply; if these plants are carefully lifted in the autumn, before they are injured by frost, and laid in a cool dry pit, they will yield nice heads up to the end of February—far superior to any winter Broccoli. The earliest-planted crops of *Celery* should be earthed up at favourable intervals. *Cauliflowers*, *Broccoli*, *Brussels Sprouts*, *Savoys*, and *Borecole* should be earthed up when they require it: it is best to do it as soon as the land is in a working state after rain. *Lettuces* should be planted out at intervals of ten days or a fortnight; if sown in drills, as recommended last month, they should now be well thinned out, and in dry weather be kept well watered. The soil between all young crops should be kept well stirred with the hoe, to destroy weeds, and to promote a vigorous growth. *Tomatos* should be kept regularly nailed in, and the shoots well thinned, otherwise they become crowded and unsightly.

Sow: Kidney Beans at the beginning of the month; Cabbages any time before the middle of the month, but not later for the North; Endive at the beginning of the month, for winter; Turnips, a large breadth for winter, about the middle of the month; Lettuce twice during the month; Radishes in a cool situation.

FORCING HOUSES.—*Pines:* The directions given last month for plants in all

stages of fruiting will serve for this. The succession-plants that were shifted last month will now be rooting freely into the fresh soil and growing vigorously away ; anything like crowding should be avoided, as the plants would become drawn and weakly. Any plants not shifted last month should be attended to at once. *Vines*: When the grapes are all cut in the early houses, every attention must be paid to the thorough ripening of the wood. In general, the wood of early-forced vines gets well ripened, but it is always well, when the grapes are cut, to pay a little attention to complete the ripening of the wood, so as to bring them into a state of rest as soon as possible. Give abundance of air night and day, and gentle fires, to cause a dry atmosphere. Look carefully over late Grapes, and take out some of the inner berries where they appear too close together. Grapes intended to be kept late should not be allowed to remain crowded in the bunch, as they are liable to retain moisture in damp weather, and then soon decay. Keep a moist atmosphere in all late houses where grapes are swelling, by frequently sprinkling the paths. *Peaches*: As soon as the fruit is all cleared in the early house, give the trees a good washing with the garden engine, to cleanse the leaves of any filth that may have collected on them during the ripening of the fruit. All shoots not wanted for bearing next year should be removed ; give abundance of air night and day, and keep a dry atmosphere. All inside borders must be kept well watered. *Figs*: Attend to the stopping and thinning of the shoots ; syringe trees bearing the second crop of fruit, and maintain a moist atmosphere by frequently sprinkling the floor of the house. Keep plants in pots and tubs well watered, also all inside borders. *Cucumbers* and *Melons*: Maintain a steady, gentle bottom-heat, by means of linings, to plants in all stages ; give air freely, and attend to watering when necessary. Red-spider will become troublesome on the plants, if not carefully guarded against. Look well after young plants, and attend to earthing when required ; also to the thinning and stopping of the shoots.

HARDY FRUIT GARDEN.—Give the trees a good washing with the engine two or three times a week ; this will help to keep them clean. Attend to nailing and tying in the young shoots as they require it. Stop or remove all superfluous shoots. Thin out the young canes of *Raspberries* and secure them against wind. Persevere in well thinning the young fruit ; a reasonable crop of superior fruit is preferable to a larger one of inferior quality. *Strawberry* runners should be layered at once into small pots for forcing next year, and for making fresh plantations ; they must be kept well watered. Net *Cherries* and *Strawberries*, to protect them from birds.

FLOWER GARDEN.—*Plant Houses*: Use every means to counteract the dryness of the atmosphere at this season, by frequent syrингings and sprinkling the paths during the day. Water should be given according to the individual state and habit of the plants, giving abundance to those making free growth, and diminishing the supply where the growth is matured. Air should be given night and day.

Some of the *Soft-wooded Plants* that have been grown for specimens will now be coming into flower, and should be well attended to ; they will require liberal supplies of water, and should occasionally have a soaking of liquid manure. Attend to the training, tying, and regulating of the shoots as they require it, and turn the plants about occasionally. See that they are clear of insects, and endeavour to keep them so. *Hard-wooded Plants*, in-doors, cannot now have too much air admitted, but care must be taken that nothing suffers from drought. Plants, out-doors, must be well attended. Any plants requiring shifting into larger pots should be potted without delay. The plants, both in and out-doors, will be much benefited by copious syringings in dry hot weather. The young plants in pits and frames should have air night and day ; attend to the stopping and tying of the shoots, and the training of the plants ; shift any that require it, and see that nothing suffers for want of water.

Pits and Frames.—*Cinerarias* for autumn-flowering should at once be put into the pots they are intended to flower in ; they cannot have a better place than a cold frame facing the north ; the lights should remain on during the day, with plenty of air, but should be taken off at night. *Primulas* should be shifted and grown on in pits and frames ; they do best when kept close ; admit air freely at night, but do not remove the lights. *Balsams*, *Cockscombs*, *Globe Amaranths*, &c., should be removed to the conservatory or show house as they come into flower.

Out-Doors.—*Bedding Plants* have had a bad start this season, the weather being dry and hot at the time of planting, and for a considerable time after, rendering necessary constant watering to keep the plants growing ; spare no pains to get the ground covered as soon as possible. Attend to the pegging-down of *Verbenas* and other plants as they advance in growth. *Hollyhocks*, *Dahlias*, *Salvias*, *Phloxes*, *Asters*, and other tall-growing plants should have stakes put to them, and be neatly tied up as they require it. Cut dead blooms off *Pinks* and put in pipings. Layer *Carnations* and *Picotees* as soon as the shoots are long enough. Look frequently over *Roses*, and endeavour to keep them clear of insects ; cut off dead flowers, and give the plants good soakings of water in dry weather. If you have any rose stocks, they should be budded at once.—
M. SAUL, Stourton.

TODEA WILKESIANA.

HIS beautiful and very rare miniature Tree Fern, for the accompanying figure of which we are indebted to the *Gardeners' Chronicle*, was first discovered by Mr. Brackenridge, the botanist attached to the United States' Exploring Expedition, in Ovolau, one of the Fiji Islands, where it was found growing in humid mountain forests. It has since been imported in a living state by the Messrs. Veitch and Sons, of Chelsea, whose parent plant is here represented, and who have, we believe, been fortunate enough already to secure a rather numerous progeny.

The present species belongs to the *Leptopteris* group, which, however, does not present any sufficient differential characters to separate it from *Todea*, the thin texture and pellucid character of the fronds affording the only marks of distinction. The species now under notice is, no doubt, closely allied to *Todea Fraseri*; but is of larger growth, with an arborescent habit, while the lower pinnæ are distinct and deflexed, and the rachis is hairy. Mr. Baker, indeed, makes it a variety of *T. Fraseri*, but the two plants are distinct enough for all garden purposes.



Mr. Brackenridge, who has given an excellent figure in the volume of the United States' Exploring Expedition, devoted to Ferns, describes the trunk as attaining from 18 in. to 20 in. in height and an inch and a half in diameter. It is scaly towards the top, and produces from near the base black wiry roots, about the thickness of a crowquill, while the surface is roughened by the raised scars of fronds that have fallen off, and the summit is crowned by from 10 to 12 spreading fronds, of a broadly-lanceolate outline, and 2 ft. or upwards in length. The pinnæ are sessile, oblong-lanceolate, spreading, the two or three lower pairs

distant and deflexed. The pinnules are oblong obtuse, obliquely cuneate at the base, dentate, and pellucid as in the allied species. The rachis of the pinnæ is winged and clothed with articulated hairs. Messrs. Veitch's parent plant has already a stem of a foot or more in height, and about an inch in diameter. This slender tree-like habit gives it quite a distinct aspect amongst its allies, which include some of the most lovely of cultivated ferns.

As regards cultivation, the plant requires a shady intermediate house, and like other filmy ferns, to have its fronds always bathed in moisture. A dry atmosphere would bring to it certain destruction.—T. M.

MALUS FLORIBUNDA.

APPLE-BLOSSOM! There are, indeed, very few flowers more beautiful than this, taken just while the buds are bursting open, and showing the beautiful deep red blush on the outside of the petals, like the bright flush on the cheek of a fair lady,—and with ladies Apple-blossom is always in especial favour. In spite of the great abundance of Apple-blossom, some a shade darker or a shade more beautiful than others, and notwithstanding it is so extremely common, there are but few who can pass by an apple-tree in all the glorious beauty of its full florescence without pausing to admire it. There is something extremely chaste and beautiful and captivating to the eye in apple-blossom, that is not to be found in the blossom of any other of our fruit trees, lovely as they also are. We would grow the Apple for the beauty of its blossoms alone, had we not some other varieties equally, ay, still more beautiful, which have no other claim to our regard.

Pyrus spectabilis, the Chinese showy apple, is a variety pretty well known for its handsome appearance in our shrubberies. The flowers are semi-double, and just before they expand are extremely beautiful. It is greatly sought after for cut flowers.

What can I say, or how in words express sufficient admiration of the more recent *Malus floribunda*? Of all the lovely flowering trees in existence this most surely bears off the palm. How it is that it has not come more into notice is indeed extremely strange, seeing that it has been in the country for some years. It was introduced from Japan by Siebold, who calls it *Malus floribunda* [but it must not be confounded with the white-flowered Indian *Pyrus floribunda*]. Siebold sent it to Van Houtte, who took but little heed of it for some years, but in 1865 a glowing and most gorgeous figure of it, not in the least overdrawn, appeared in the *Flore des Serres*. It is, as described in a previous volume of the FLORIST, "as superior to *Pyrus spectabilis* as Charles X Lilac is to the common purple." It is of the Apple section of the *Pyrus* family, and grows to a goodly size. The habit is graceful, the shoots being somewhat slender and drooping. The flowers are produced in greatest abundance on the young shoots, and hang gracefully. The buds before they open are of a bright crimson, and

about the size of small cherries, and have the appearance of strings of red corals. When expanded the beauty is of a different type, but still unique. It is a charming plant for growing in pots for conservatory decoration.—A. F. BARRON.

NOVELTIES, ETC., AT FLOWER SHOWS.

EARLY, if not quite, all the new things shown at the Crystal Palace and Royal Botanic Society's Shows are also exhibited at the bi-monthly meetings of the Royal Horticultural Society at South Kensington. At the Crystal Palace Show on the 21st of May, Messrs. Carter and Co. received a First-Class Certificate for a *Variegated Zonal Pelargonium, Lothair*, robust in growth, finely coloured, and altogether very promising ; there was a degree of distinctness of character about this variety, by no means commonly found in the new kinds lately exhibited. It is also pleasant to notice that First-Class Certificates are very sparingly awarded now for variegated Zonal Pelargoniums.

At the meeting of the Royal Botanic Society on May 25, a First-Class Certificate was awarded to Mr. C. Turner, for *Azalea Madame Van der Cruyssen*, one of the newer Belgian varieties, having bold flowers of a fine rosy hue, and handsomely spotted. On this occasion, and also at the Crystal Palace Show, the same award was made to *Azalea Roi d'Hollande*, described on page 141,—further proofs of its value as a fine deep-coloured variety. A First-Class Certificate was also awarded to *Erinus alpinus albus*, a charming white variety of this neat and distinct little Alpine and rock plant, raised by Mr. Atkins, of Painswick.

The meeting of the Royal Horticultural Society on the 8th of June was the means of bringing together some very fine novelties. One of the foremost was the very pretty dwarf *Leptosiphon roseus*, a new and hardy Californian annual, with lively pink flowers ; *Cyclobothra pulchella*, a half-hardy Californian bulbous-rooted plant, by no means new, but very pretty, bearing pale yellow flowers ; *Delphinium nudicaule*, raised from seed received from California, apparently a great improvement on *D. cardinale*, and more easily managed ; and *Brodiaea coccinea*, with magenta-crimson flowers tipped with green (see plate, p. 145). These were exhibited by Mr. William Thompson, Ipswich, and all received First-Class Certificates.

Pink Flower of Eden, shown by Mr. E. Shenton, Biggleswade, and awarded a First-Class Certificate, scarcely deserved that award, if the *Bride* (Hodges), awarded this distinction last year, is to be accepted as a criterion. The latter is a pure white flower, with stout rounded petals and full substance, which cannot be said of the other. The same award was made to *Bedding Pelargonium Master Christine*, exhibited by Mr. Cannell, Woolwich. It has the habit of the old pink Christine, but with a bright rosy pink hue on the flowers, and was scarcely worthy the high award made to it. *Clematis Sylph*, from Messrs. T. Cripps and Sons, Tunbridge Wells, is one of those fine early-blooming kinds that have been so freely produced during the past three years ; the flower is large,

and bold, white, with a slight tint of mauve on the exterior of the petals. It was deservedly awarded a First-Class Certificate; as also was *Gloxinia Alice*, shown by Messrs. Rollisson and the Messrs. Veitch and Sons; it is a very fine drooping-flowered kind, the lobes rich plum-purple, the throat sulphur-white.

Mr. C. Turner, who was remarkably strong with new *Pelargoniums*, received First-Class Certificates for the following large-flowered varieties:—*May Day* (Foster), *Syren* (Foster), *Iron Duke* (Foster), *Charlemagne* (Foster), *Admiration* (Foster), and *Duke of Edinburgh* (Foster). These, in accordance with a usual custom, will be noticed more in detail by and by, when the list of new varieties is completed. The following older kinds, shown on this occasion, should be noted for their rich beauty:—*Troubadour* (Foster), *Heirloom* (Hoyle), *Maid of Honour* (Foster), *Envoy* (Hoyle), *Example* (Hoyle), *Bonnie Charlie* (Hoyle), and *Corsair* (Foster).—R. D.

GARDEN GOSSIP.

HE past month or six weeks has been, as usual, a special season of Exhibitions. The Royal Horticultural Society, the Royal Botanic Society, and the Crystal Palace Company have, in the Metropolis, respectively held their great shows with more or less success. That of the former society, on the 8th ult., was one of the best London shows of late years, though lacking in effect, from the unsuitable buildings in which it was held. In the country, the great shows at Manchester, Leeds, and York have been most successfully carried out, though not with the result of eclipsing the London shows, as some country scribes would have us believe. Then we have had a Special Show of a somewhat novel character, in Mr. William Paul's Garden of Pot Roses at the Crystal Palace, an exhibition to which the resources of the Waltham Cross establishment have been devoted, instead of being diverted by exhibitions for competition. The garden corridor at the Crystal Palace, which overlooks the beautiful grounds, has seldom been utilized for a better purpose, and Mr. Paul, who has long been known as one of the foremost of the great champion growers, has in this exhibition well maintained his honour and reputation. The Roses were principally arranged in one long bank, broken up at intervals, and relieved by being judiciously intermixed with garden Ivies in pots, pretty standard specimens of the *Acer Negundo variegatum*, the Golden Oak, and other pictorial trees, and edged with a belt of *Pyrethrum Golden Feather*, or *Euonymus radicans variegata*, the latter alternating with neat specimens of tricolor and zonal *Pelargoniums*, &c. Mr. Anthony Waterer, of Knaphill, and the Messrs. Waterer, of Bagshot, have held their usual shows of American plants, at South Kensington and the Regent's Park respectively; and though, from the nature of the season, they have been somewhat inferior to former exhibitions, yet they always rank amongst the most gorgeous floral displays of the season.

— AMONG the new books which have recently appeared, is a small, nicely got-up volume on *Mushroom culture*, by Mr. Robinson, to which we may probably return. Its object is to extend the cultivation of this useful and nutritious esculent, and hence not only are the various processes of cultivation fully explained, but the wholesome kinds are neatly figured. The text throughout is amply illustrated.

— THE prize essays on *Cottage and Window Gardening*, to which Mr. Hubbard's prizes were awarded, have been published by the Royal Horticultural Society, and are sold in packets for distribution, at a low price. Mr. Badger's essay on *Cottage Gardening* is exceedingly well adapted for the object in view, being remarkably simple in style, and intensely practical in matter, points to which Mr. Hubbard rightly attached great importance. Mr. Butterly's contribution on *Window Gardening* is marked by

brevity, but is satisfactory as far as it goes. Another of the competing essays on this subject, by Mr. Meikle, has been published in a shilling brochure by the Messrs. Routledge, under the title of *Window Gardening*. It is a well-written essay, mainly devoted to bulbs and ferns, and is quite deserving of commendation.

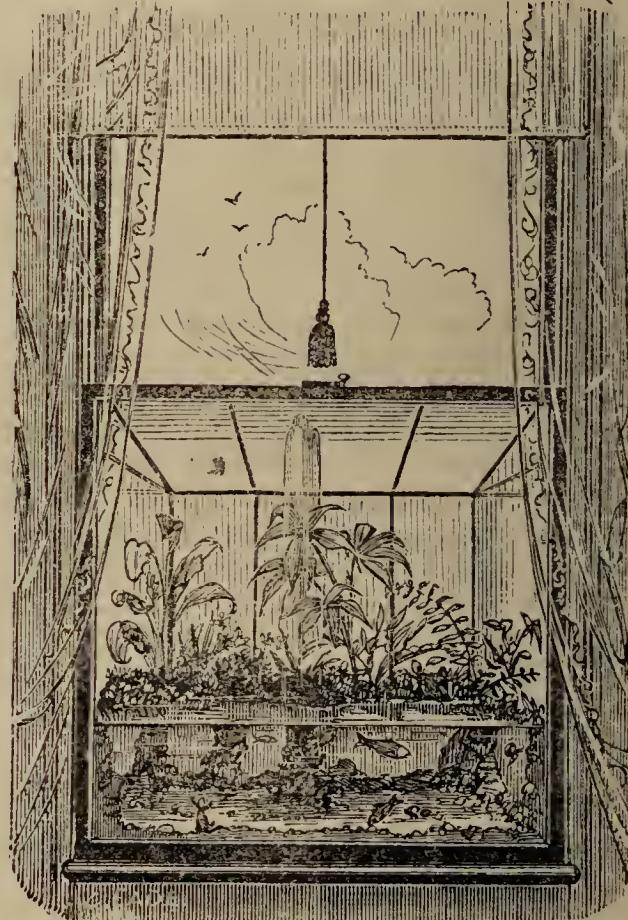
— THE following is the result of the *Gardeners' Examination* in Floriculture and Fruit and Vegetable culture held by the Society of Arts in April last. The Prizes offered by the Society of Arts and the Royal Horticultural Society in connection with these examinations have been awarded as follows:—G. Downton—S.A. and R.H.S. 1st prize for Floriculture; S.A. and R.H.S. 1st prize, Fruit and Vegetable culture = £20. W. Jones—S.A. and R.H.S. 2nd prize for Floriculture; R.H.S. 2nd prize for French and Vegetable culture = £9. Mr. Downton is one of the Chiswick students:—

	FLORICULTURE.	FRUIT & VEGETABLE		FRUIT & VEGETABLE	FLORICULTURE.
E. BEARPARK, Hull	—	2nd Class.	T. HOGG, Glasgow	2nd Class.	—
W. DAVIS, Richmond	1st Class.	2nd Class.	W. JONES, Liverpool	1st Class.	2nd Class.
G. DOWNTON, Richmond	1st Class.	1st Class.	T. KEMP, Bury St. Edmund's ...	3rd Class.	3rd Class.
C. FORD, Bury St. Edmund's ...	2nd Class.	—	J. MCARDLE, Stamford	1st Class.	2nd Class.
J. C. HIGGS, Southampton	2nd Class.	—	W. READ, Richmond	1st Class.	3rd Class.

— WE recently invited the attention of our readers to some examples of *Aquarium Plant-cases*, exhibited by Messrs. Dick Radclyffe and Co. We now add another illustration from the same source, showing how a case of this kind may be fitted so as to occupy the lower part of a window. In such situations they are extremely interesting, as, owing to the transparent media, of which they are in great measure formed, the movements of the living fish can be readily seen, while the position is the most favourable for plants that could possibly be chosen in a living-room. All that is requisite to secure success in fitting up plant cases of this, or, indeed, any other sort, is to make a judicious selection of plants, introducing those only for which the position and aspect are suitable, and not mixing together such incongruities as hardy and tender or shade-loving and light-loving plants, nor such as require marked differences of atmospheric moisture. For street windows, when the prospect is not very inviting, or for back windows in town residences, where there is generally some disagreeable object to shut out, these cases at once commend themselves, as both ornamental, instructive, and useful.

— A NOVEL description of *Glass Wall* has been invented by Mr. Beard, of Bury St. Edmund's, and of which we hope to give some account, with illustrations, shortly. The Wall occupies but little space, and being transparent, will offer no obstruction to the passage of light, which will thus be shared alike by both sides of the tree.

— THE *Metropolitan Society for the Encouragement of Florists' Flowers* announces an exhibition at the Crystal Palace on September 6 and following days, when prizes to the amount of £150 (towards which the Directors of the Crystal Palace Company give £100) will be offered for Dahlias, Hollyhocks, Gladioli, Verbenas, and Asters. Schedules will shortly be issued.

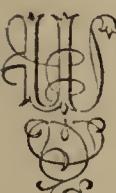




Tulip - John Henry

TULIP JOHN HENRY.

WITH AN ILLUSTRATION.

 **E** are indebted to Mr. John Hepworth, of Huddersfield, whose interesting letters on floricultural subjects appear from time to time in our pages, for the opportunity of figuring this fine new Tulip, as well as for the following particulars respecting its origin:—"The Tulip John Henry was raised from seed sown in 1856, the pod having been gathered two years previously from the No. 1 fine strain of that very old favourite Louis XVI., impregnated with a very fine seedling byblœmen breeder. From the same pod of seed I have obtained several other superb seedlings, not yet named." Mr. Hepworth further states that no bulbs of this variety have as yet been parted with, nor will there be any for distribution before August 1871, but should the stock at that time amount to one dozen good blooming bulbs of the rectified flower, it will then be in the market at the price of one guinea each bulb. The breeder, which in the breeder state is also a first-class show flower, will also be sent out at 7s. 6d. each. In case any untoward circumstances should intervene to prevent this number from being obtained by the time stated, the bulbs must be kept back till August, 1872.

The annexed portrait, from the pencil of Mr. Andrews, affords sufficient evidence that the variety John Henry, when it becomes known, will take up a high position amongst feathered byblœmens; and as it is now many years since a new Tulip was figured in our pages, we cannot doubt that so beautiful an illustration will be acceptable to the floral section of our readers.—T. M.

ROSES AND ROSE-CULTURE.

CHAPTER III.—THE WEEPING ROSE.

 **H**E Weeping Rose is obtained by budding any Rose which produces long pendulous shoots, on a tall stem of the Dog Rose. The Ayrshire and Sempervirens groups furnish the best kinds for this purpose, because their growth is naturally pendulous, but any vigorous-growing kinds may be trained to form Weeping Roses. The general treatment should be the same as that advanced for the Standard Rose (p. 106); a different system of pruning and training is alone required, and this I shall now attempt to describe.

The Weeping Rose should stand singly in the rosetum, or on the lawn. The first year after being removed to its final destination, preserve from three to six shoots only, which should be set on the head at about equal distances from each other, radiating like the spokes in a wheel. Cut out all other shoots close to the head, so that no other eyes may spring from them. If three shoots are left, cut each back to two eyes; if six shoots can be satisfactorily arranged in proper position, cut each back to one eye, which will give by the end of the growing season a well-established tree, with six long pendulous shoots placed at about

equal distances from each other. Some place an umbrella-like wire frame over the head, to which the shoots are tied down ; others tie them to strings leading from the head of the tree to pegs driven into the ground. Either plan will answer, as the arrangement is but temporary, and may be withdrawn when the head becomes of sufficient bulk to stand alone. The tree requires little or no pruning the second year. Whatever may be the number of shoots, as many as can be tied to the wires or strings, at about equal distances from each other, should be preserved their full length, and they will push forth flowers and flower-bearing branches from almost every eye from head to foot. During and after the flowering season fresh shoots will push from the base of the head, extending in one long line as before described.

In the next year's pruning we have two sorts of shoots to deal with,—(1), long pendulous shoots one year old, that have flowered in the preceding summer, and are covered their whole length with short flower-bearing branches ; and (2), long pendulous shoots of recent growth, covered their whole length with dormant eyes. Lay these to the strings or wires alternately if their position will allow, or indiscriminately, if it will not, till you have a well-balanced and well-furnished head. If the tree has grown sufficiently to give you a choice of shoots and branches, choose the stoutest, healthiest, and longest, provided such are or can be placed at nearly equal distances from each other. Now turn to the one-year-old shoots, and prune the short flower-bearing branches (those which gave you the flowers last year) back to two eyes each ; the long pendulous shoots of the last summer's growth studded with dormant eyes should not be cut at all, but preserved their entire length. The tree then is pruned, and will be likely to produce a mass of flowers in the approaching summer.

The method of pruning and training above described requires to be repeated from year to year. As the plant increases in age, it is well to cut out two, three, or more of the oldest shoots at each annual pruning, introducing young ones in their places. If premature decay or debility should set in, there is no better remedy than that of cutting all the shoots back closely and manuring the tree. I have seen Weeping Roses in a condition apparently hopeless, quickly restored to health and vigour by thinning out all weakly shoots, and cutting back the principal ones to a single eye.—WILLIAM PAUL, *Paul's Nurseries, Waltham Cross, N.*

THE CHATSWORTH CONDUIT EDGING TILE.

ON a season like the present, when the supply of water to our gardens is of more than usual importance, it is gratifying to find that the Messrs. H. Doulton and Co., of Lambeth, the eminent earthenware manufacturers, have brought out a new form of border-edging tile for gardens—the Chatsworth Conduit Edging Tile—which promises to be a very material aid in securing a supply of water of the best kind for gardening purposes, viz., that which falls

from the heavens. This tile is the joint contrivance of Mr. Speed, the Duke of Devonshire's talented gardener at Chatsworth, and myself. Mr. Speed, on noticing after a storm that a quantity of water stood inconveniently upon a garden walk, and in a place where water was always scarce, thought, "Why could not that water, and all the water that falls upon the walks, be stored in tanks underneath them, ready for use when wanted?" The notion was mentioned to me when I happened to call shortly afterwards, and the result is

the tile now presented to the public, and of which fig. 1 shows a section and perspective view.

The tile consists of two parts; first, a flat-soled conduit with a slot along the upper side, into which the tile H fits, and which is held in its place by means of

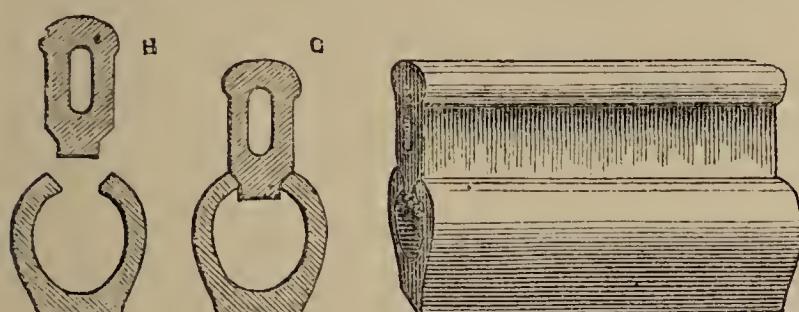


FIG. 1

a little weak cement. At the time of fixing the tiles, a piece of thin zinc or tin is placed between the parts on the lower side until the cement becomes set, and through the chink thus formed, when the pieces are withdrawn, the water finds its way into the conduit, and thence to the tanks provided to receive it, or if not wanted passes away into the general drains of the garden.

As will be seen by the section of the tank and walk (fig. 2), the latter covers the conduit completely, and if the walks are formed of superior materials, as all walks ought to be, it is clear that the greater part of the water which falls upon

them must be carried into the tank A. The conduits are connected with the tanks, as shown at C, while at D is a cast-iron pipe with a plug through which the feeding-hose of the garden-engine may be dropped to draw up the required supply of water. At B is shown the end of a common drain-pipe, through which, when the tanks are full, the waste water passes from the highest to the lowest point of the garden, and thence to the main drain. The advantage of this arrangement is, that if there is an extra supply of water from

any outside source, it is only necessary to convey it to the tank at the highest point of the garden, and from it all the other tanks which may be connected with this upper one will be filled.

It is not necessary to dilate upon the importance of these arrangements. Too many of us have felt during the present season the want of a copious supply of water; and it may be safely averred there is no labour of the garden so liable to be scamped as that of watering, be it the washing of wall trees, or the soaking of their roots, when the water necessary for the purpose has to be carried or wheeled a considerable distance prior to use. Here, as will be seen by the

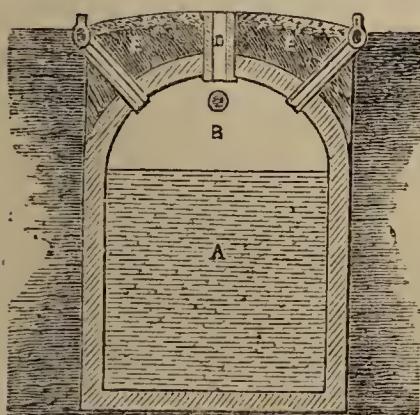


FIG. 2.

annexed plan of a garden (fig. 3), the tanks are so placed as to admit of the water being distributed with the greatest ease; and it is not too much to assume that, with an arrangement of this kind, two men with a garden-engine, or a lady with her "handy man" would do more effective watering in a few hours than half-a-dozen men with the usual means would in a day. If it is desired, a pound or two of guano, or any other concentrated manure can be dropped into the tanks, and there will be a supply of liquid manure; or by the same rule lime may be thrown in, and there will be a supply of lime-water in a few minutes.

Whether, then, we look to the palatial gardens of the nobility, or the simple plots of the artizan or labourer, the new conduit tile will confer a great boon upon the gardening public. Of course, its form may be varied to suit the requirements of designers, but the conduit itself will be as useful to the architect in the forecourt, or in the elaborate geometric garden, as it will be to the gardener. Tiles for edging grass verges are in preparation, and these once properly fixed will do away with the edging-knife and the raw, dark edgings which are such a dis-sight in most gardens every spring, and will secure what has long been desired, a perfectly true and even grass verge to our walks. The tiles are manufactured in terra-cotta, and, considering the material employed, are sold at a reasonable price.—
W. P. AYRES, *Nottingham*.

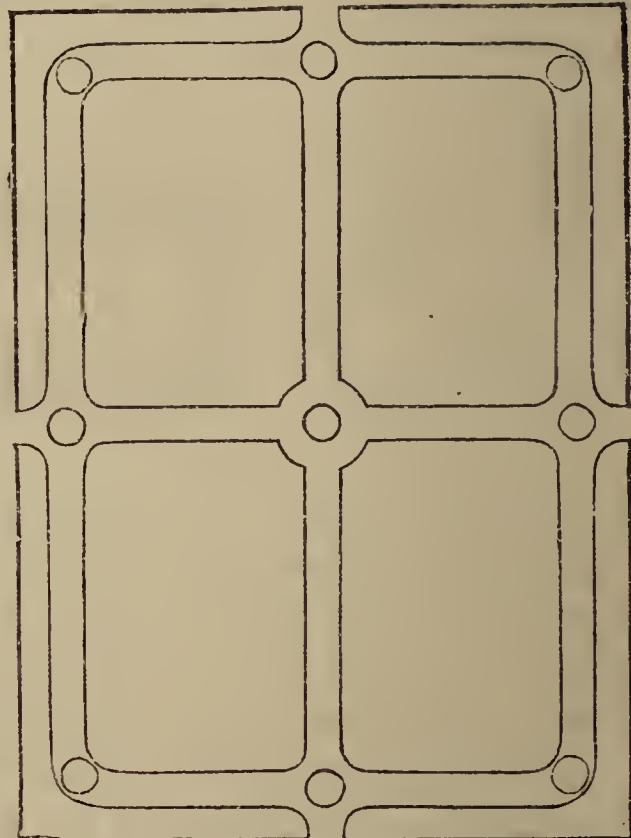


FIG. 3.

ON THE FAILURE OF FRUIT IN 1869.

HERE has been some discussion in these pages on the failure of Fruit in 1869. Some who have written on the subject laid much stress on the hot and dry weather of the previous summer, by which the trees were deprived of proper nutriment to mature the fruit-buds. Others have contended that the failure was owing to the ungenial weather when the trees were in bloom. This coincides best with the observations of those who wrote in the preceding autumn, for they observed that the young shoots and fruit-buds of the trees were strong and well ripened. Yet our best hopes were blighted, and not by "biting frost," and we must look to some other cause for the failure. In my opinion, it was the lack of sunshine when the trees were in blossom, for without the genial rays of light all the gardener's art must fail. That is also well shown by the abundance of fruit this season. Some Northern gardeners,

however, profess to rear or force early crops of fruit better in a "murky" climate than those of the south in a "muggy" one; but I know something of "early forcing" in the North, and can state without scruple that the climate of some parts of Scotland is better adapted for it than that of some parts of England. Though the Northern winters may be more severe, still there is more sunshine to nourish vegetation under glass.

This reminds me to notice that the failure of fruit last season, especially of peaches, was nearly as complete under glass as in the open air, which corresponds with what I have said, that both were the effects of lack of sunshine. I back this by what I have said respecting the crops of this season, and by the success of a neighbour, whose peaches were in bloom early in February when there was sunshine, while mine, which bloomed later, proved a failure. I may notice, however, that he *dusted* the pollen on the blossoms with a fine brush, and to this, with the cause just stated, I ascribe his success.

I advert again to climate, or rather to the springs in England, which I have called *muggy*; but frequently they are the reverse, especially in the Eastern counties, where there are dry, cold, and cutting winds, without sunshine, and perhaps as severe as the springs in the eastern parts of Scotland, the effects of which reach less far inland. But as the Scotch are very sensitive as to what is said respecting their country, I will only further observe that gardeners may be privileged to grumble at the weather, seeing that their success depends so much upon it.—J. WIGHTON, *Cossey Park*.

CROPPING OLD STRAWBERRY PLANTS.

 WILL not here enter into the disputed question whether it is the more profitable plan to replant Strawberry-beds every third or every second year, or even annually, as some of our market gardeners and others do, or to  keep the beds in bearing for a greater number of years, as, no doubt, every man, if he be a thorough practitioner, has become wedded to his own practice in this respect. But I wish to draw attention to the fact that the same plants may, under certain conditions, be grown to fruit for many years in succession, and in abundance, so that when twelve or thirteen years old, the last crop shall exceed all that have preceded it.

It is thirteen years since I made a plantation of Strawberry plants upon a border having a northern aspect, and in which the roots of the wall-trees existed. I did not permit them to fruit the following spring, but pinched off every spike of bloom before the flowers began to expand. In the three following years they fruited plentifully. At this stage, the plants being five years old, I decided to thoroughly renovate the old soil in the border for the benefit of the fruit-trees growing there; but as the Strawberry plants looked strong and well, having an abundant crop of huge leaves of the deepest green, I determined, without hesitation, to throw all old conventional practices and supposed laws overboard, and to

take up these plants carefully, preserving the roots to the utmost, and replant them. I did this mainly on my faith of the great capacity for endurance of which the strawberry is possessed, knowing full well all the while how ridiculous such an attempt would be regarded by old hands, for who would think of transplanting old strawberry stools—though it may not be half so cruel a practice as turning out plants which have been forced, manure-watered, and taxed to the utmost in the houses, and expecting them to recover and to afford a supply for a few seasons out-doors? However, the plants succeeded, and took fresh hold of the new soil in the old border, increased in size annually until plant met plant, and now such a row of crowns exist as is seldom to be seen. Whilst I write, in the thirteenth year of their existence, these plants have a very heavy crop upon them, and a question lately arose with my employers and their friends whether the "first" fruits could be the Keens' Seedling, so large were they.

I take a further lesson herefrom. Not only is a deep soil, a maiden soil, rather over than under a moderate richness, essential to their successful culture, but little if any digging or forking should be permitted amongst them. Again, a soil which is cool—cool in its nature and all its properties—even whilst the hottest sun of summer or early autumn is parching the surface, amid a rainless season, is also of the utmost, of the first importance.—WILLIAM EARLEY, *Digswell*.

TRUE LOVERS' KNOTS:

FORGET-ME-NOTS ALL THE YEAR ROUND.

GOOD news this for your young readers, while there will be none too old to hear of it unmoved. Who does not remember some bit of Forget-Me-Not given or received, perhaps long, long ago, though it seems but yesterday as we recall it, and the heart beats quicker even now, as we write or read about it. Sweetest emblem of affection! Universal preacher of love and devotion! But the Forget-Me-Not of our youth was born of the rill or river. The lover was drowned in fishing it out for his mistress. It was scarce in many localities, and more or less inaccessible in all, while its beauty was at the best comparatively short-lived.

It was a great improvement when the *Myosotis sylvatica* came to the aid of the old *Myosotis palustris*. This was easily cultivated on any good soil, and continued to flower much longer in succession. With liberal treatment and a skilful choice of situation and times of sowing and propagation, three or four months of blooming season could be got out of it. In all good qualities, however, it is again superseded by *Myosotis dissitiflora*. With this alone I have girdled the year round with an unbroken string of True Lovers' Knots, a continuous blue band of Forget-Me-Nots. In favourable seasons this latter plant will begin to flower in the open air in January or February. On rich soil, with plenty of water, the same plants will continue flowering until November. But such flowers will become weak and puny. The best mode of insuring continuous

blooming is by several consecutive propagations or sowings of seed. For the sake of brevity, and likewise because it has been my sole mode of increase, I will confine these remarks to propagation by division.

Supposing, then, that the first batch of these plants flowered from February to May. Let them then be taken up, divided into single crowns, with a modicum of roots, and planted in light, rich garden earth, in an open situation. By July they may be divided again and replanted. By September they will have formed patches from 4 in. to 6 in. across, with probably a dozen shoots. Towards the middle of October six or eight dozen of these plants should be potted into 6-in. pots, one lot of them to be placed in a cool conservatory, and another in a house heated to about 55° . The latter will flower fast, and as soon as they are in bloom they should be removed to the conservatory, and another lot introduced in their stead. The lot in the conservatory will most likely flower the strongest, and will come in before the first forced ones begin to fade. By introducing a batch of plants about every six weeks, a constant succession of flowers may be enjoyed in-doors from October to June. And very beautiful pot plants they make, while they prove as useful for vases and bouquet work. Every lady prizes her bouquet all the more for the few sprays of the elegant *M. dissitiflora*.

For successional flowering out-of-doors, it is only necessary to divide and plant part of the stock, say every six weeks, from May to October. Those propagated latest will flower last the following season. For the first flush of beauty, the plants should not be reduced later than July. Those broken up in August, September, and October will continue to bloom freely under good treatment next season from May to December, so that the forced plants in-doors and those grown outside may be made to overlap each other by a month or six weeks. In mild seasons, and in sheltered warm localities, this Forget-Me-Not may be gathered every day in the year out-of-doors. But it is well worth the shelter of glass and a little forcing.

I am told that it is grown and managed with equal ease from seed. But of this I have no experience. All my stock of several thousands has been raised from a single plant. Under liberal culture no plant can grow more freely. Grow it full in the sun to develop flower-buds, and flower it anywhere, and anyhow you wish. Individual plants will get stunted and rusty under the best treatment; these refuse to grow, and throw up puny flowers of a purple colour. Weed them out as they appear, and propagate only from the strong, healthy plants. By this means the stunted strains will be almost, though possibly never altogether, stamped out. The first-flowering batch likewise do best, out-of-doors, on raised banks. On the flat, when hard frosts rapidly tread on the heels of rain or snow, the leaves, and occasionally the hearts of the shoots or embryo flowers, get frost-bitten, and such catastrophes retard the flowering by a full month or six weeks. Elevated ground lines pitch off the wet, and thus weaken the grip of the cold frost.

We generally transfer the plants from the growing to the flowering quarters in January or February. They are moved with balls, and planted closely together. This ensures a much better display than any attempt to get flowers from two year-old plants, though these will likewise make a good display. But for certainty and profusion, regularity and spontaneity of blossoming, there is no plant to equal this annual furnishing of the blooming quarters, with fresh, strong flower-showing plants.

Successional crops do well on the flat. Beyond midsummer and through the winter, the flowers are more delicate, longer-stemmed, and last longer if they are produced in partial shade. The succession crops also need abundance of water. Under the best treatment these late harvests of beauty will not equal the first grand displays from February to June. Still, by following these simple instructions, plants may be had for all purposes of bouquet or love-making throughout the year.—D. T. FISH, F.R.H.S.

AQUATICS.—CHAPTER III.

 QUAIN'T morsel is the common Frog-bit, *Hydrocharis morsus ranae*. If you will take your stand some fine morning in June beneath the flexible branches of that weeping willow by the margin of yon pool, you will see

a group of small, glossy black-beetles, *Gyrinus natator*, quickly chasing each other in circling and zig-zag courses amongst the orbicular leaves of a small floating plant which has at first sight the aspect of a minor *Nymphaea*: this is the Frog-bit. The flowers are white, tripetalous, about half an inch over, and produced on short peduncles, the males and females on separate plants. The roots are feathery, and hang suspended in the water. The leaves rarely exceed two inches over, and are nearly circular in outline. The plant produces during the summer abundance of runners after the manner of the Strawberry, and these float on the surface, and if detached make separate plants.

It is just the plant for small tanks or basins, even down to the ordinary fish globe, and is a little gem during the summer months. It nevertheless possesses curious whims and fancies of its own, and if you look for your Frog-bit some early autumnal morning, you will probably come to the conclusion that a frog has gobbled it up altogether, for nothing remains visible. Well, what has become of it? If you will put your hand to the bottom of the water you will find sundry small oblong greenish buds, about half an inch or so in length, like some nondescript pseudo-chrysalis; here is the fugitive Frog-bit, in a state of hibernation for the winter. At the return of spring the leaves again unfold, and it once more floats to the surface for the summer.

The name of Frog-bit is said to have been applied to it on account of the stem always appearing as if bitten off close underneath the leaves, but why the frog should be accused of being guilty in this case, the chronicler saith not; probably good old Gerarde might have enlightened us.

It is a very local plant, and although abounding in certain places, more especially in some parts of Kent, it is not so frequently met with as many other natives. It has been observed in a small streamlet which flows hard by the ruined walls of Merton Abbey, where King John is said to have slept the night before he signed the Magna Charta at Runnymede. The same streamlet, after passing under a rude arch, runs along the side of what was formerly the garden of the immortal Nelson, the hero of the Nile—where, it will be remembered, a certain war-vessel yclept the “L’Orient” came to grief, and sundry similar craft composing a certain fleet, were put to confusion in such sort, that the few which kept afloat at the close of the engagement turned their sterns to the land of the Pyramids, and made sail with all convenient speed for the coasts of Gaul.

The Water Soldier, *Stratiotes aloides*, in some respects resembles the Frog-bit, while in others it is very dissimilar. The flowers are of the same shape, though somewhat larger, and of a purer white. The leaves are about 18 in. long, tapering to a point, of a glossy, transparent green, thickly set with large teeth along the edges, and more like those of a *Pandanus* or the crown of a Pine-apple, than those of an Aloe. It does not coil itself for the winter like the Frog-bit, but remains quiet at the bottom of the water. It rises again about July, when the flowers stand up boldly above the surface, and as they generally appear in considerable numbers, they do resemble to some extent the white cockades of a company of the old English Volunteers, which in days gone by might have been seen mustering in strong force on many a village green; hence the name, Water Soldier,—though, happily for the volunteer, the diving part of the business, practised by the plant once a year, did not form part of his discipline.

It is rather a dangerous plant to introduce into ponds, large or small, unless partly destroyed every season, as it increases so rapidly by suckers, that a few plants will fill up a large space almost as quickly as the *Anacharis Alsinastrum*, or American Water-weed. It requires no planting, but merely throwing into the water. In tanks or very small ponds it is easily kept in subjection. As in the case of the Frog-bit, only one species is known.—W. BUCKLEY, *Tooting*.

MUSHROOM-CULTURE.

TTENTION has of late been specially directed to the cultivation of these sapid esculents, by the publication of Mr. Robinson’s observations on the methods adopted in France, and by the issue of some practical brochures, explanatory of the mode of procedure usually followed in this country. In a recent publication,* from which the annexed woodcuts are borrowed, Mr. Robinson has collected the substance of his former writings, and has added a considerable mass of information from other sources, so as to produce a kind of handbook of Mushrooms for mushroom-growers, the scope and object of which is

* *Mushroom-Culture: its Extension and Improvement.* By W. Robinson, F.L.S., author of “The Parks, Promenades, and Gardens of Paris,” &c. With numerous Illustrations.

to urge the more general cultivation of these delicious and nutritious plants, and the policy and profit of becoming mycophagists. The book, moreover, is very nicely got up, so that while it should be obtained to grace the shelves of the garden library, its varied contents will render it useful to those who take it down

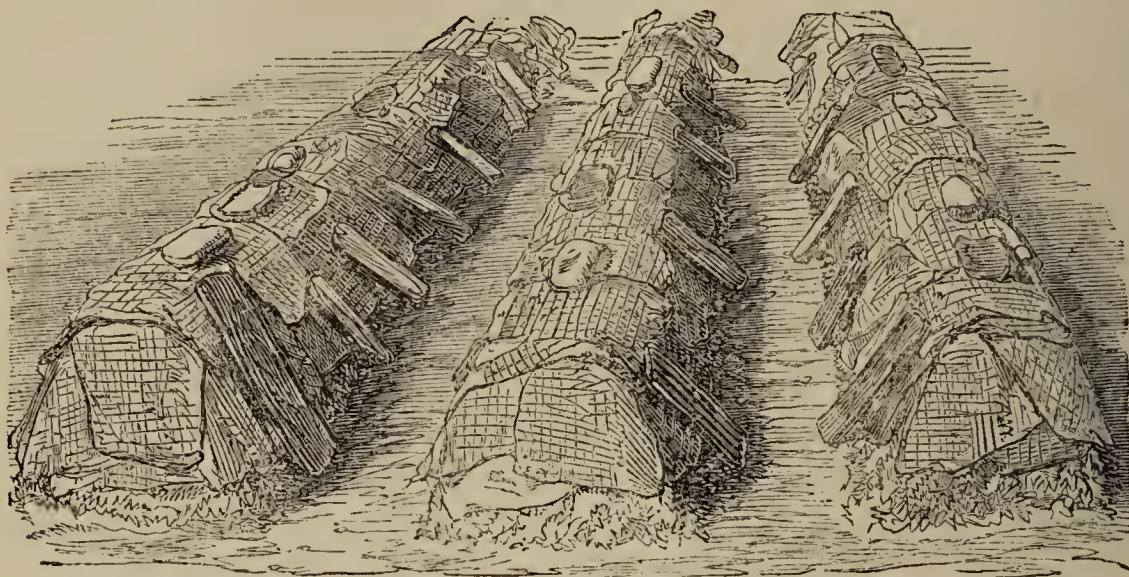


FIG. 1.

for perusal or reference. With this prefatory commendation, we pass on to make some illustrated abstracts, explanatory of the proceedings of the market gardeners of London and Paris :—

Mushrooms may be grown with ease in the open air in gardens ; but this is a phase of culture, with which gardeners are by no means sufficiently conversant. In fact, mushroom-culture in the open air in private gardens may be said not to exist at present, so very rarely is it seen. In a little pamphlet on mushroom-growing that has lately appeared, it is stated that mushrooms may be grown out

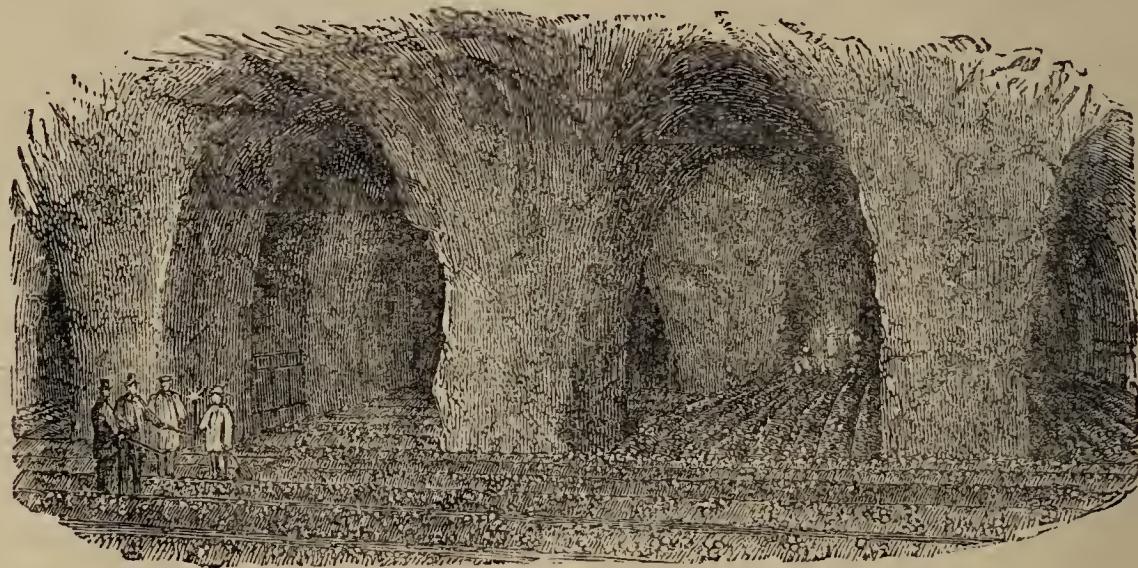


FIG. 2.

of doors "in summer," but nothing is said about their being grown in the open air in winter. The Paris growers never attempt their culture in summer ; the London ones very rarely. It is in winter that their cultivation is carried on in full vigour in the open air, and then abundant crops are grown by the market gardeners of London and Paris.

The accompanying illustration (fig. 1) is from a sketch taken in November, 1869, in market-garden fields between Kensington and Brompton. The beds, about $3\frac{1}{2}$ ft. high, and the same in width at the base, are covered with the long straw or litter taken from the stable manure. Over that are placed old bast mats or any like materials to keep the litter in its place, and throw off the rain, the mats being kept in place by tiles, bricks, old boards, or any like objects that may be at hand. The manure employed is that brought from the London stables, the longer litter being shaken out and put on one side to cover the beds. It is usually made into beds soon after it is brought in, and before it is allowed to heat, and then the beds are made in the form of potato pits and beaten very firm. The beds are spawned when at a temperature of 80° , the pieces of spawn being placed about a foot or so apart, and they are then immediately earthed, the ordinary soil being used and the bed covered to a thickness of a couple of

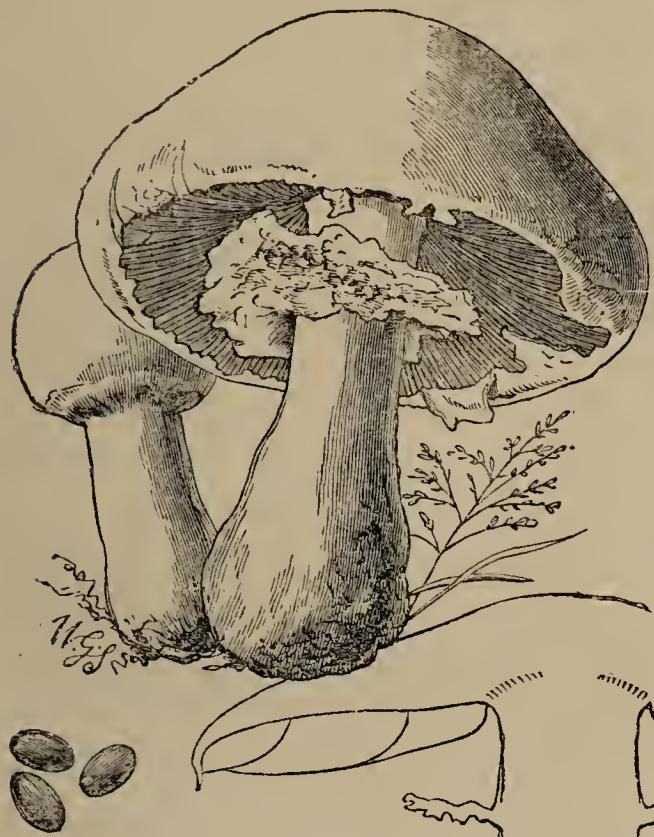


FIG. 3.

inches. Beds made in this way in the autumn and winter months, and covered with a thick layer of litter and mats, seldom require any watering. The culture

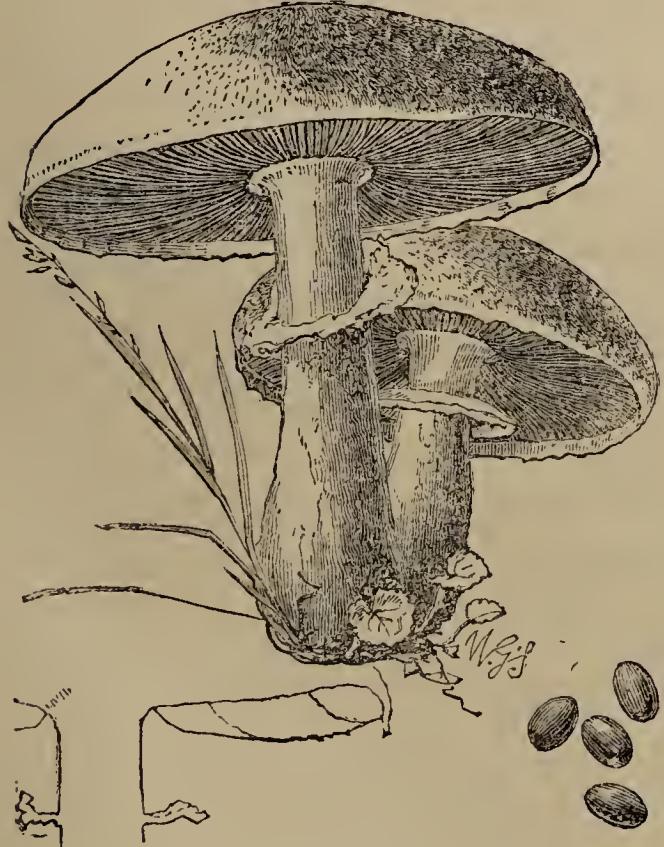


FIG. 4.

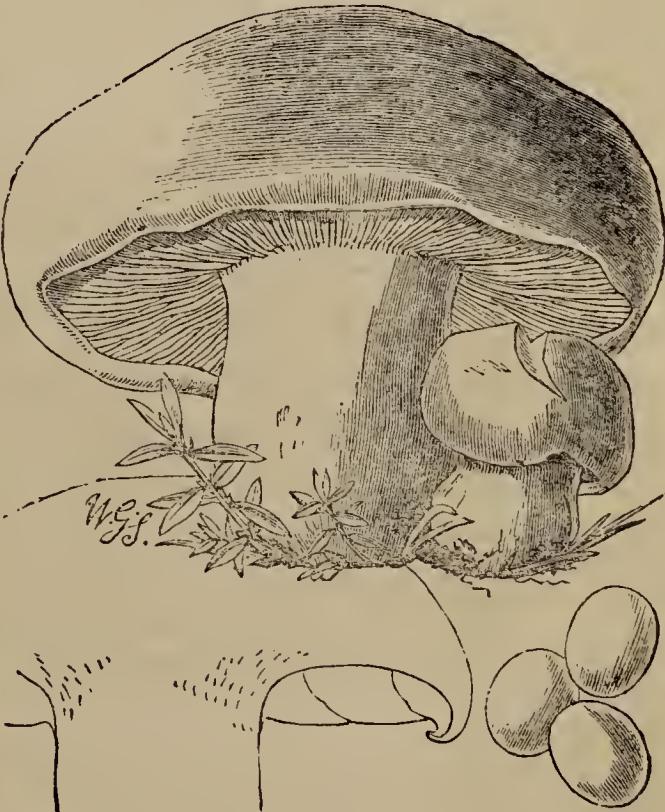


FIG. 5.

inches. Beds made in this way in the autumn and winter months, and covered with a thick layer of litter and mats, seldom require any watering. The culture

is not usually attempted in summer, the heat acting upon the littery covering, giving rise to insects which destroy the mushrooms; but with care their culture is quite practicable even at that season. There are many acres of ground covered with beds made thus in the market grounds round London.

In France vast quantities of mushrooms are grown in caves from whence building stone has been quarried. In the open spaces and along the passages of them the mushroom beds are formed side by side wherever space can be found for them. The beds are not more than 20 in. high and of about the same width at the base, those made up against the sides of the passages being still smaller. Spawn in flakes from a heap of stable manure into which it has run is preferred, or else that taken from old beds. These caves, of which an illustration is here given (fig. 2), not only supply champignon-eating Paris, but large quantities of preserved mushrooms—40,000 boxes annually from one house—are also exported.

To those who do not possess the more expensive books which give coloured figures of esculent fungi, a series of capital woodcuts of the more important kinds, drawn and engraved by Mr. W. G. Smith, himself an excellent fungologist, will be found of much interest. We subjoin the figures given of the True or Meadow Mushroom, the Horse Mushroom, and St. George's Mushroom. The True Mushroom, *Agaricus campestris* (fig. 4), occurs in pastures in the autumn, attaining a diameter of from 3 in. to 6 in., and is known by its white or pale brown colour, and its salmon gills, which at length turn black. The Horse Mushroom, *Agaricus arvensis* (fig. 3), which is the species exposed most commonly for sale in Covent Garden Market, is found plentifully in pastures in the autumn, attains a diameter of from 6 in. to 24 in. and is known by its yellowish colour, and its dirty-white gills, which turn black. It is nearly allied to the True Mushroom, but of coarser quality. The St. George's Mushroom, *Agaricus gambosus* (fig. 5), is found in pastures in the spring, attains a diameter of from 4 in. to 6 in., and is of a creamy colour and a most savoury character; its early appearance, and its growing in rings, together with the thickness of its pileus, the narrowness of its gills, and its solid, bulging stem, suffice to distinguish it. Mr. Berkeley's estimate of it is that it is excellent in flavour and particularly wholesome. Figures of some fourteen other species of edible fungi are given, with notes on their qualities, and the modes of cooking them, and these it may be hoped will do something towards extending a knowledge among the masses of the vast amount of nutritious wholesome food to be obtained from the suspected family of Fungi.—M.

ON THE GROWTH OF TIMBER TREES.

THE following account of the comparative growth or increase in height and circumference of stem of some of the various Coniferous plants which have been introduced into this country within the last half-century, may be found interesting at the present time, when the question of the adaptability of such trees to cultivation on a large scale with a view to profit, as

timber, is occasionally cropping up. In the dimensions given, the circumference of the bole or stem has been invariably taken at a height of 3 ft. from the ground-level, and the height by measurement.

1. *Cedrus Deodara*: planted in 1832; height in 1837, 6 ft., in 1850, 32 ft. 10 in., in 1870, 60 feet; circumference of bole, 7 ft. This is evidently a cutting plant, and not a seedling, and has very much the character of the Cedar of Lebanon.

2. *Abies Morinda*: near the above, and planted at the same time; height in 1837, 7 ft. in 1850, 27 ft., in 1870, 57 ft.; circumference, 7 ft. 6 in. It is a very handsome plant when in good foliage, and well feathered to the ground.

3. *Pinus ponderosa*: also planted in 1832; this has a very fine bole, which carries its thickness well upwards; it is 65 ft. high, and the circumference of the stem is 8 ft. I calculate that there are now quite 17 ft. of timber in it. This appears to me to be one of the most likely conifers to make a valuable timber tree, in situations similar to those in which the Scotch fir flourishes, and no doubt the quality of the timber will be quite equal to, if not superior to, that of the Scotch fir, if the accounts which have been given of it are correct.

4. *Abies Douglasii*: planted in 1832; height in 1837, 15 ft. 3 in., in 1850, 48 ft.; in the frost of 1860-61 8 ft. or 10 ft. of the leader was cut off, but it has now recovered, and is 65 ft. high; circumference of bole, 7 ft. 6 in. It carries its thickness up well, and appears likely to be equal, if not superior to the spruce.

5. *Pinus insignis*: planted in 1842; 2 ft. 4 in. in height; in 1850, 25 ft. 6 in.; and now, 60 ft., with a circumference of the bole at one yard of 8 ft. 4 in. This is a very noble plant, and is the only one out of many which was not injured in the frost of 1867; the branches, which are proportionately very large, radiate from the stem in a peculiar manner, extending to a great length—nearly 30 ft., and from their weight of foliage they gradually bend down to a horizontal position. Should this tree be spared to become aged, I have no doubt whatever that it will be one of the most striking and picturesque of the whole tribe; but I should almost fear that its very rapid growth would militate against its intrinsic value as a timber tree until very old.

6. *Abies cephalonica*: near to and probably planted at the same time as No. 5; it is a very handsome specimen, nearly 50 ft high; circumference, 6 ft.

7. *Taxodium sempervirens*, or *Sequoia gigantea*: from a cutting struck in 1848, planted in 1850, is 35 ft. high, and 6 ft. in circumference of bole. A Douglas Fir planted near this on the same day is 35 ft. high and 3 ft. 6 in. in circumference, and a *Cedrus Deodara* 30 ft. high, and 2 ft. 4 in. in circumference.

8. *Wellingtonia gigantea*: planted in March, 1855, pulled up by a boy with an eye to the beautiful in May, discovered in a bed-room window, brought back and replanted minus its splendid roots. They are now 35 ft. high, the circumference of the stem at 3 ft. is 6 ft., and round the base 9 ft. I am sorry to add that the foliage both of this specimen and of most of the Coniferous plants about

the place has suffered very much indeed from the piercing east winds accompanied with severe frost which occurred on February 12 of the present year, but I hope they will recover in due time. Such a combination of wind and frost is by far the most severe that has occurred during my experience, and I shall be very agreeably surprised if we do not find, as the season advances, that more injury than we expect has been done.

9. *Cryptomeria japonica*: planted in 1847, is 40 ft. high, and has a circumference of 3 ft. 4 in. The timber of this tree is said to be very valuable, and certainly the slow rate at which the stem increases, in comparison with others of the same age, might lead to the inference that its timber would be closer-grained and stronger, as a larch which is grown slowly in an exposed situation, is of better quality than one grown much faster in a low and sheltered place.

By way of comparison, the following authentic facts with regard to the present size of older trees may be useful as a guide. A *Scotch Fir* planted in 1808 is now 65 ft. high, with a circumference of stem of 8 ft. at a yard from the ground. A *Silver Fir* planted at the same time is 80 ft. high, with a circumference of 9 ft. 6 in. Three *Cedars of Lebanon* also planted in 1808 have each a full circumference of 9 ft., and an average height of 65 ft. The timber of this tree is valueless where strength is required, being very brittle, and incapable of bearing any strain; it has a powerful and very agreeable odour, and pieces of it placed among the clothes in a wardrobe help to keep the moths in check. A *Turkey Oak* (*Quercus Cerris*) planted in 1808 is 60 ft. high, with a circumference of 8 ft. A *Cork Tree* (*Quercus Suber*) planted in 1808 is nearly 70 ft. high, and has a circumference of 7 ft. 9 in. A *Birch* planted at the same time as the last is 60 ft. in height, and has a circumference of 6 ft. 6 in. Lastly, a *Common Oak*, the acorn of which was sown in the place where the tree now stands in November, 1807, is about 60 ft. high, and the bole is 6 ft. 2 in. in circumference at a yard from the ground.—JOHN COX, *Redleaf*.

THE PEARS AT TORTWORTH COURT.

RESUMING my annotated list of the Pears grown in the gardens at this place, at the point where it was broken off at page 12, I proceed to record my experience of the several varieties, in the hope that my observations may prove useful to many of your readers:—

Bergamotte Esperen.—This is a rough-skinned and rather unprepossessing variety, but withal of sterling merit,—one of our very best late kinds. When grown as an open standard the flavour is somewhat uncertain, and the fruit subject to black spots, caused by a species of fungus, which renders it perfectly useless. Few Pears are more productive, so much so, that it requires a liberal thinning. To bring out its real properties, it should be trained against a south, an east, or a west wall, when the flesh is exceedingly tender, melting, juicy, and sugary. An ordinary-sized fruit weighs from 8 oz. to 9 oz.; begins to ripen usually during the second week in December, and continues in use till the end of January.

Bergamot, Gansel's Late.—I have grown this pear under widely different circumstances, trained on walls of varied aspects, as well as open standards, and in every case have found it worthless. When the fruit did become soft, the flesh was coarse, dry, and gritty.

Bergamot, March.—The name of this pear would induce us to believe that it comes into use during March, which is incorrect, unless it be retarded under special conditions. It usually begins to ripen the first week in January, and lasts till the middle of February. I cannot say that the flesh is melting, still it is soft, juicy, sugary, possessing a strong bergamot flavour, and is a very superior pear to Easter Bergamot, which ripens at the same time. The usual weight is from 6 oz. to 7 oz.; very productive, and really an excellent kind in its season.

Bergamotte Cudette.—I can hardly exclude this pear even from a limited collection. The flavour is all that the most fastidious palate can desire, melting, buttery, juicy, and possessed of a most agreeable acid. Begins to ripen during the first week in November, and continues in condition about fourteen days. The usual weight is from 7 oz. to 8 oz. The tree begins to bear in a young state, and is very productive.

Bergamot, Easter.—As a late pear, this variety has long been held in high esteem, but it is completely eclipsed by March Bergamot. The flesh is dry and gritty; and it is a shy bearer till the tree is of a considerable age, and is not worth cultivating even in a large collection. The fruit generally weighs from 5 oz. to 6 oz.

Bezi d'Esperen.—Beyond its appearance, this pear has very little to recommend it. It might prove an excellent market variety.

Baronne de Mello.—This is a first-class kind, and very productive; so great a bearer in the majority of seasons that the fruit requires to be well thinned, otherwise it is small and deficient in quality. The flesh is melting, exceedingly juicy, rich, and sugary. The weight of the fruit varies considerably, hardly or ever exceeding 7 oz.; it begins to ripen during the last week of October, and like the majority of Autumn pears is soon over.

Bon Chrétien, Williams'.—This is a pear of short duration, as it hardly keeps in condition beyond ten or twelve days. It should be gathered before it turns yellow, for if allowed to remain too long on the tree the flavour is flat, soapy, and insipid. When picked at the proper time it is really delicious, tender-fleshed, juicy, and sugary. The usual weight is 9 oz.; it begins to ripen during the last week of September.

Broompark.—This is truly a variety of great excellence, gushing with juice, and sugary; weighing from 6 oz. to 7 oz. The period of ripening is somewhat uncertain, as we have had it in use during the last week of October, and again not till the middle or end of November.

Comte de Lamy.—In almost any situation this variety may be pronounced to be of first-rate excellency, being tender-fleshed, melting, buttery, and sugary, as well as very productive. The weight rarely if ever exceeds 4 oz.; it begins to ripen about the middle of October.

Conseiller à la Cour.—I am aware that this variety bears the character of being a first-class pear, but with us it has never been more than second-rate, and, therefore, its cultivation has been discontinued. The usual weight is from 8 oz. to 9 oz.; it begins to ripen during the first week in November.

Colmar.—Unless in very exceptional cases, the fruit never ripens except when trained against a wall, fully exposed to sunshine, and even then it is rather a shy bearer till the tree is of a considerable age. Although the flesh is melting and sugary, it may very well be omitted, where there is not ample accommodation; begins to ripen during the first week of November, and weighs from 8 oz. to 9 oz.

Doyenné Desuis.—This is by no means a large pear, rarely if ever exceeding 5 oz. in weight, but of a delicious flavour, one of our very best mid-winter varieties, gushing with juice, and musky. A very hardy and productive kind; no collection, however limited, should be without it.

Délices d'Hurdenpont.—Although this pear is considered by some to be a first-class variety, it has not on any occasion shown such a quality with us. The flesh is rather dry, and deficient in sugar; begins to ripen about the middle of December, and weighs from 7 oz. to 8 oz.

Duchesse de Mars.—Like the preceding, this variety may be dispensed with, although of superior quality. We have grown it trained to walls for a good many years, and constantly find it to be a shy bearer. It begins to ripen during the first week in November, and weighs from 5 oz. to 6 oz. The flesh is melting, and to some extent buttery, but deficient in sugar.

Duchesse d'Angoulême.—For exhibition purposes there are few pears that claim more attention than this variety as to outward appearance, it being of a large size, and weighing as much as 16 oz. In cold situations the quality of the fruit is unsatisfactory, and it should therefore be trained against a wall. The space may, however, be employed to better advantage. When in its prime the flesh is only half melting, and if allowed to get the least over-ripe it becomes woolly and insipid. It usually begins to ripen about the 25th of October, and keeps in condition only for a short time.

Duc de Nemours.—As to flavour, this is perhaps the most worthless pear in cultivation, undeserving of a place in any collection, however extensive. We have years ago discontinued its cultivation. The fruit has a handsome appearance, and weighs from 11 oz. to 12 oz.

Elisa d'Heyst.—The quality of this pear is excellent, but to have it in perfection it must be trained against a wall, and then the flavour is delicious, the flesh melting, very juicy, and sugary. Ripens the beginning of February, and weighs about 5 oz. Very productive from an open standard, but the produce, unless in exceptional seasons, is never satisfactory. The borders require to be well drained, otherwise the fruit splits, and even then, there is a chance of its doing so during wet autumns.

Eyewood.—The quality of this pear is very variable. Occasionally it is all that can be desired, melting, sugary, and full of juice; while during some seasons, the flesh is gritty, coarse, and dry. Begins to ripen between the 18th of October and the beginning of November. The weight rarely exceeds 4 oz.

Fondante de Malines.—During hot seasons this pear may be classed as of first-rate quality, but it is quite worthless when the summer happens to be cold. Begins to ripen about the 20th of October, and weighs from 8 oz. to 10 oz. It is hardly worth cultivation, as there are so many very superior kinds in use at the same time.

Forelle.—This is perhaps the most beautiful pear contained in British gardens, and is very productive. There may be some difference of opinion as to its quality, but it has long held, and will, I think, continue to hold a prominent position. The flesh is buttery, melting, and to some extent sugary. The flavour is higher when grown against a wall. It usually begins to ripen during the first week in November, and continues in use to the beginning of December.

Flemish Beauty.—This kind does not keep above two weeks, and is a shy bearer; even in a large collection a couple of trees will suffice. The flavour is unquestionably good, very juicy, sugary, and melting, and I may add, delicious. But there is this peculiarity, that unless gathered some little time before it ripens it has no merit whatever. The usual weight is 12 oz.; it is fit for use about the 20th of October.

Glou Morceau.—The quality of this pear is so well known and so highly appreciated, as to render description unnecessary. It fruits freely as a standard, but to bring out its real merits must be grown against a wall, which it well deserves. The flesh is very fine, tender, buttery, and very sugary. In use during December and January, and weighs 6 oz. to 8 oz.

Groom's Princess Royal.—This is a handsome and an attractive-looking pear, but hardly worth its place even in a large collection, and by no means productive, bearing only a few straggling fruit. The flesh is melting and juicy, but insipid. The usual weight is from 10 oz. to 11 oz., and it begins to ripen during the first week in November.

Huyshe's Prince of Wales.—Whether trained against a wall or grown as a standard, this variety invariably proves to be a shy bearer, but the fruit is of excellent quality. The flesh is buttery, juicy, and sugary, but occasionally is gritty at the core. The average weight is from 9 oz. to 10 oz.; it begins to ripen about 20th November.

Hacon's Incomparable.—We have grown this kind as an open standard for a great many years, and have invariably found it to be a shy bearer, never yielding more than one-third of a crop. The quality is all that can be desired; melting, juicy, and sugary. Begins to ripen about the 20th of November, and weighs from 14 oz. to 15 oz.

Jargonelle.—This is a pear of universal repute, its merits being known and acknowledged by the cottager as well as by persons of higher pretensions. The greatest drawback is its perishable character, but this defect may be obviated to some extent by planting two sets of trees, one trained on a south aspect, the fruit of which ripens during the first week in August, while a second set of trees grown as open standards very much lengthens the succession.

Jean de Witte.—The flavour of this variety very much resembles that of Glou Morceau, and under some conditions it is difficult to draw a distinction between them as regards the shape of the fruit; both have an obovate form, but the eye of the former is more close and deep than that of the latter. We have invariably found Jean de Witte to be a shy bearer under any condition; but it is really a first-class pear, melting, rich, and very sugary. Begins to ripen during the first week in January, and weighs from 5 oz. to 7 oz.

Josephine de Malines.—This is a very hardy and productive pear, even as an open standard, but it must be trained against a wall before we can realize its true character, and even then the tree must be of a considerable age. The flavour is delicious, melting, sugary, vinous, and aromatic. Begins to ripen during the second week in December, and weighs from 7 oz. to 8 oz.

Louise d'Orléans.—This is a pear whose quality varies considerably. We have had it juicy and sugary, but more frequently quite worthless. It is hardly worth growing even in a

large collection, as its place can be filled by many very much superior. The time of ripening is also somewhat uncertain; sometimes it comes into use during the first week in October, and at other times not till the end of the month. The usual weight is 4 oz.

Louise Bonne of Jersey.—There are few situations where this pear does not succeed, and very few surpass it in quality, as it is very sugary, melting, and juicy, combined with an agreeable acid. During our cold sunless summers, the latter quality predominates, which renders it less agreeable, but even then it holds the character of a first-class fruit. Begins to ripen during the first week in October, and occasionally about the end of the month. Weighs from 6 oz. to 7 oz.

—ALEXANDER CRAMB, *Tortworth.*

THE GARDEN MENTOR.

AUGUST, being harvest month, is always a very busy one, both in the garden and farm. A great many kinds of garden seeds will now be ripe or ripening, and should be carefully gathered when fit. Insects, especially the winged tribes, now abound, and will be very troublesome—flies and wasps very much so in respect to ripening fruit.

KITCHEN GARDEN.—Every advantage should now be taken of dry weather to destroy weeds; this will prevent their being troublesome for some time. The ground from which early *Potatos*, *Cauliflowers*, and *Peas* have been cleared should be planted with *Cauliflowers* for the autumn, late *Celery*, *Lettuces*, and *Endive*. Keep the ground between all young growing crops well stirred with the hoe, and earth-up as they require it.

Sow: Prickly Spinach, a large breadth at the beginning of the month for winter and spring use; Cauliflowers, for planting into frames, about the middle of the month, but not later for the North; Turnips, a good breadth at the beginning of the month for main winter crop; Hardy Hammersmith and Brown Dutch Lettuces in the first week, to stand over the winter.

FORCING HOUSES.—*Pines:* Plants bearing fruit in all stages must now have liberal supplies of water, and be syringed over-head freely on fine days, being careful to avoid watering those in flower. Give air freely in the morning, but close up early in the afternoon. The best of the succession plants, intended for early fruiting next season, should at once have their final shift; the soil for potting Pines, like that for all other plants, should be in a fit state for potting when used, neither too wet nor too dry. In potting the plants, care should be taken to press the soil firmly between the old balls and the inside of the pots.

Before the plants are replunged, the bed should be partially or wholly renewed, as may be required; afterwards, see that the bottom-heat does not get too high. The young plants should be shifted, and the beds renewed, and the suckers from the present fruiting plants should be potted and plunged in a pit by themselves.

Vines: The instructions given last month will to a great degree serve for this. Give the early house all the air possible, if the wood be ripened, to bring it into a state of rest as soon as possible. Give abundance of air to Grapes in all stages, keeping up a proper temperature by fire-heat in bad weather. *Peaches:* The principal thing to be attended to here at present is the ripening of the wood. Give all the air possible, and remove every shoot not wanted next season, and shorten and tie down any shoots that may require it. *Figs:* The second crop of

fruit will now be approaching maturity, and will be fine if the foliage has been kept clean and healthy. The plants in the borders should now have less water, but those in pots or tubs should be well watered when they require it. Give abundance of air. *Cucumbers and Melons*: Attend well to the lining, that the plants may have a regular, steady bottom-heat. Keep the shoots from being crowded. Water freely when necessary, and give air freely in the forenoon, but close up early in the afternoon ; cover the frames at night.

HARDY FRUIT GARDEN.—The gathering of fruit as it ripens will now require constant attention. Continue to stop and thin out all shoots not wanted, and keep all wall trees neatly nailed in. Thin the leaves from about the fruit, to expose it to the sun. Protect all ripe fruit with hexagon netting. *Raspberry* canes just out of bearing should be cut away. If not already done, the *Strawberry* runners layered last month in small pots for forcing next season, should at once be shifted into their fruiting-pots ; use a good strong loam and a little rotten dung, and press the soil firmly in the pots around the plants. Put a little soot at the bottom of the pots to keep out worms. When all are potted they should be set in an open, sunny situation, and be well attended to in watering. New plantations should be made at once with the runners layered last month in small pots for this purpose.

FLOWER GARDEN.—*Plant Houses*: These should now be thoroughly cleaned, and repaired, and painted if necessary, so as to be in readiness for the plants next month. As most of the *Soft-wooded Plants*, which have been grown on for late summer or autumn decoration, will now be in flower, they should be carefully looked over every day, and have all decaying flowers and leaves removed as soon as possible, and any shoots that may require it tied neatly up. They will need liberal supplies of water, and abundance of air. *Fuchsias*, when well done, are very useful for decoration at this season. All *Hard-wooded Plants* out of doors will now be greatly benefited by the night dews. The young plants in pits and frames should also have the benefit of them, by removing the lights on fine calm nights. Attend well to the watering, and see that nothing suffers for want of it, either in or out-doors.

Pits and Frames.—The *Cinerarias* that were potted last month will now be growing freely, and should have plenty of room. Attend well to the watering, and give abundance of air during the day, leaving the lights off altogether on fine nights. *Primulas* must be kept rather close and warm, to encourage them to grow freely. *Zonal Pelargoniums* that have been grown out of doors during the summer months for autumn decoration, will, in case of bad weather, do very well in pots or frames for a few weeks before they are taken into the houses, if put in towards the end of the month. They must be kept well supplied with water, and should have abundance of air ; indeed, as long as the weather continues fine, the lights should remain off both day and night.

Out-Doors.—The thorough soaking the *Bedding plants* got by the thunder

showers in the middle of June has made up for the bad start the plants had after they were planted out, in consequence of the dry weather. Rarely has the flower-garden looked gayer or better at this season ; and if we have fine weather in the autumn, we may look for a long continuance of beauty. Attend well to the regulating of all shoots ; keep all decaying leaves and flowers constantly picked off ; and stake and tie up tall-growing plants. Among hardy perennials, the numerous fine varieties of the *Phlox* tribe will now be in great beauty. Propagation for another season must be commenced at once. Most kinds of *Pelargoniums* root best in a south border in the open air. *Petunias*, *Verbenas*, and similar plants root best in frames. *Pentstemons*, *Snapdragons*, and similar plants will succeed very well planted under hand-glasses and shaded. Attend regularly to the mowing of lawns, and the sweeping and rolling of walks.—M. SAUL, *Stourton*.

THE GARDEN PINK FOR FORCING PURPOSES.

HE Garden Pink, in its several varieties, has always been, and will, no doubt, long continue to be, a special favourite. Everybody loves the modest beauty and delightful fragrance of its flowers, and many consider it as only inferior to the Rose itself. One or two varieties of this Pink have been generally found very useful for forcing into flower during the winter and early spring months ; and I would here call attention to a few other sorts, well suited to the same purpose, but which are not so well known as they should be.

The varieties mostly used for forcing are the *Common*, or *London White*, a fragrant and very useful sort ; and a larger dark variety known by the name of *Anne Boleyn*, and which produces exceedingly beautiful and very sweet-scented flowers, but has the great drawback of being addicted to bursting its pod or calyx. Observing and regretting this defect, an enthusiastic amateur florist, Rowland Dalton, Esq., of Bury St. Edmund's, many years since, after much perseverance, succeeded in originating a variety with flowers of the same colour, somewhat smaller, similar in habit, equally fragrant, and possessed of all the forcing properties of Anne Boleyn, but with the advantage of having a strong, well-formed calyx, which never by any chance bursts ; and this very useful variety was named *Claude*. He afterwards succeeded in raising another still more beautiful variety, which he named *Plato*, and this is a truly magnificent flower of a beautiful rose colour, with a finely-formed, strong calyx, quite free from bursting, and it proves to be also a fine forcing sort, coming into flower earlier than Anne Boleyn.

Another amateur florist residing in the same town, Mr. J. Clarke, who has made the cultivation of the Pink quite a specialty, has, amongst many other triumphs in that way, originated an exceedingly fine variety resembling the old favourite Anne Boleyn, but a great improvement upon it, being more

compact in habit, and producing in wonderful abundance, finely-formed, large, sweet-scented flowers, with a firm strong calyx, which never bursts. This fine variety, which is exceedingly well adapted for forcing, was named *Garibaldi*. The same raiser also originated another splendid sort, which he named *Clarke's Lord Lyons*, but this variety, although exceedingly beautiful, is in all respects very nearly identical with Dalton's *Plato*. Some few years since, the Messrs. E. G. Henderson and Son sent out a most useful variety under the name of *Most Welcome*. This is also excellent for the purpose of forcing, and may be considered as an almost perpetual flowerer, in addition to which it is possessed of all the qualities of a first-class florists' flower, and is quite free from bursting, either when forced, or when grown in the open air.

The treatment of these plants for the purpose of forcing is so very simple, that little need be here said upon the subject. During the month of March, or early in April, cuttings should be taken from plants which have been forced, and inserted in a compost made up of sand and sifted leaf-soil, using pots of some 6-in. diameter; place them in a gentle hot-bed, and in all respects treat them as cuttings of Verbenas, although they will not root so quickly as the latter. When rooted, pot them singly into 3-in. pots, and gradually harden off, and towards the end of May or early in June plant them out in the open border, in any convenient situation, in rows about 15 in. apart, and about 1 ft. from plant to plant. While here, let them have abundance of water when required.

During the first fortnight of October they should be carefully raised and potted into pots some 5 in. or 6 in. in diameter, using soil composed of turf loam, enriched with a little well-rotted hot-bed manure, or leaf-soil. They should be placed in a shaded position for a short time, and ultimately wintered in a cold pit, from which they are to be introduced to the forcing-house, as may be required. When this is done, it is necessary that the plants be kept as close to the glass as possible. Perhaps no better situation can be found for them than a shelf on the back wall of an early viney or peach house, at some 18 in. from the glass.

With the varieties I have mentioned, viz., *Common White*, *Claude*, *Garibaldi*, *Plato* or *Lord Lyons*, and *Most Welcome*, assisted by a few of the perpetual or winter-flowering carnations and picotees, little difficulty will be found in keeping up an ample supply of these fragrant flowers throughout the entire year.—P. GRIEVE, *Culford*.

GLASS WALLS FOR HORTICULTURAL PURPOSES.

LATELY read a description of what the Earth thought of the load of bricks and mortar heaped upon it by the builders. It was represented as bending down, reeling and tottering to its fall, beneath the terrible load piled upon its broad back by these unmerciful men,—its fair face scarred all over with foundations, its inside torn and distracted with huge gas,

water, and sewage pipes, and its goodly figure everywhere being marred into hideousness by huge masses of bricks and mortar, that crushed down the oppressed earth by their weight, and shut out the cheering sun by their shadows. There was only too much truth in the picture. It seems as if the "great globe itself" was in danger of being converted into dwelling-houses and workshops for man. The space occupied by buildings is immense. Walls are thick as well as high. For dwelling-houses, &c., this thickness is necessary, and cannot well be

lessened; but for many other purposes for which walls are used, such as for training trees upon, or for forming screens or dividing-lines between gardens and other properties, the thickness of the wall represents so much waste of space. The saving of ground will be immense, if

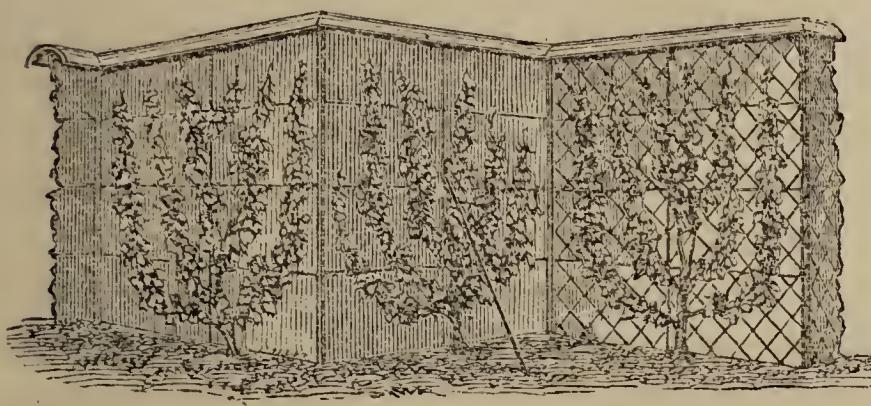


FIG. 1.

for every 14-in. or 9-in. wall we use for such purpose, a 1-in. wall can be substituted, while we shall get better walls for horticultural purposes into the bargain; for they will not only stand upon about one inch of ground, but they will not injuriously shade or diminish space behind them. The light and the heat will pass through, and the trees on each side, and both sides of the trees, will live in the light, and enjoy the heat of the sun.

While this transparency will prove a clear cultural gain of immense advantage,

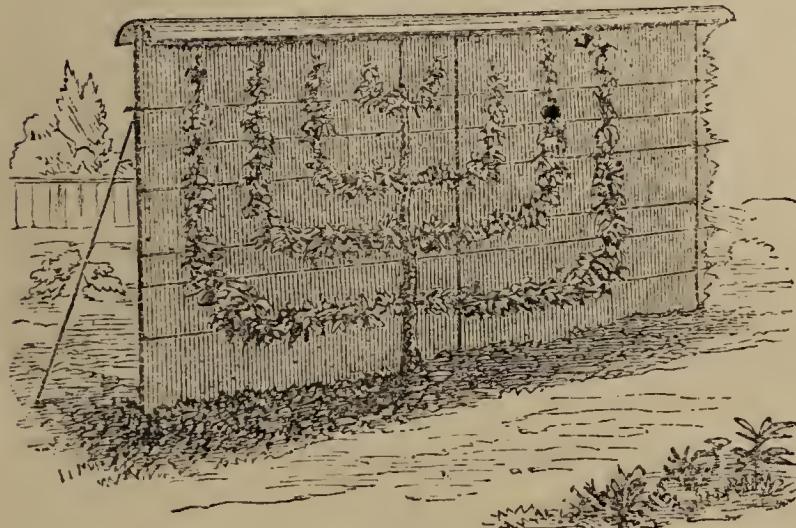


FIG. 2.

and promote the breadth, and develope to the utmost the strength, beauty, and fruitfulness of plants trained on such walls, it will likewise enable them to be packed closely together for the purpose of training or fruit-growing. The shadow of opaque walls has necessitated a considerable interval between them. To derive the full advantage from walls

as ameliorators of climate, they should be separated by spaces as wide again as their heights. But these walls may be massed together in block, and thus provide the widest possible area of wall surface on a small space. This grouping together of walls has other advantages besides the economizing of space. It must facilitate their protection from frosts and birds by horizontal coverings, and the radiating of heat from a series of walls near to each other must improve the

general temperature. A series of glass walls, arranged block fashion, with the ends enclosed by others running at right angles, would provide the highest possible temperature in the open air for the culture of superior fruit.

Perhaps a yet simpler mode of making the most of limited areas, and at the same time providing every possible variety of aspect, is the adoption of the zig-zag mode of building, either in single or in any number of lines. This form throws the wind over the projecting points, and enables the fruit to nestle in the genial warmth of the recesses. These zig-zag walls may be erected at any angle between a long slope and a series of right angles. Fig. 1 is an elevation of these zig-zag walls. They look well, and possess the rare merit of providing a suitable aspect for every variety of fruit and flower that needs the shelter of a wall. The angular spaces of ground at their base furnish sheltered nooks for ground cordons, or early vegetables or flowers.

The structural merits of these glass walls seem on a par with their cultural capabilities. Simply and quickly erected, easily taken down, and conveniently portable, are among their most valuable structural merits. They may rest upon iron soles, be bolted on to blocks of wood, or built into brick or stone, just in the same manner and with equal ease as a cattle or a sheep fence. A simple framework of iron receives the glass, a buffer of felt keeps it from breaking, and a few bolts or screws hold it together, a wire trainer is suspended from the face of the glass, and the wall is ready for use. By the aid of double iron principals and glazing-bars of iron, the walls are made strong enough for all practical purposes. The glass is protected from all risk of breakage by a ribbon of felt, intervening at all points, between the iron and glass. This arrangement enables the structure to be bound firmly together by screws, without any risk to the glass. The glass itself is so strong (over 2 lb. to the square foot) that it will stand a good deal of rough usage with impunity. A slab of slate is likewise carried along the base of the wall, to any desired height, from 6 in. to 12 in., or more; this forms a safe, strong ground-line. The top of the wall is protected by an iron coping, projecting over the wall from 3 in. to 6 in. on each side, if desired. Trainers of wire or netting are fixed on the face of the glass, from projecting studs of iron fixed into the principals. For this purpose perhaps nothing could seem more simple or efficient than galvanized wire netting of 3 in. or 4 in. mesh. Fig. 2 shows a section of a straight glass wall complete, with, however, straight wire for training on in lieu of the netting. For those who prefer an opaque wall, it is purposed to make walls of slate on exactly the same principle, the only difference being the substitution of slate slabs for those of glass. This will possess all the structural and ground-saving merits claimed for glass; but one-half of the plant and one side of the wall will still be left in semi-darkness, as on other walls, whereas, on glass walls the reign of darkness is at an end.

By these simple arrangements, a strong, useful, portable, highly efficient, and ornamental wall is placed within reach of horticulturists, at a price less than

that of ordinary brick walls. The woodcuts will give an idea of their fairy-like elegance. They are the invention of Mr. Beard, of the Victoria Works, Bury St. Edmund's, the patentee and manufacturer, from whom particulars, or the walls complete and ready for use, may be obtained. This gentleman rendered good service to horticulture by the abolition of putty and other sticky modes of glazing, but I believe these glass walls will prove a greater boon. They save space, guard against extremes of temperature, double our extent of genial surface, give us the command of every possible aspect by adopting the zig-zag form, and are strong, cheap, clean, and durable.—D. T. FISH, F.R.H.S.

GARDEN GOSSIP.

HE event of the month—horticulturally speaking—has been the *Royal Horticultural Society's Great Show at Oxford*. This, as an exhibition, has been one of a most satisfactory character; but from the greater attractions of the neighbouring Agricultural Show, and the scanty population of the district, the flower show fell short as to the attendance of visitors, and consequently as to the returns. At the congress meetings some very interesting papers were read. The Rose shows held towards the end of June were remarkably good, notwithstanding the drought of the season. The variety which seemed to be in the ascendant this year was Alfred Columb.

— A very interesting collection of *Mimetic Plants* was exhibited at a recent *soirée* of the Linnæan Society by Mr. Wilson Saunders. The following is a list of the mimetic pairs. The plants were none of them grown for the purpose, but were simply selected from the greenhouse on the spur of the moment:—

Olea europaea	Oleaceæ}	Sempervivum arenarium ...	Crassulaceæ}
Swammerdamia Antennaria..	Compositæ}	Haworthia atrovirens	Liliaceæ}
Kleinia ficoïdes.....	Compositæ}	Echinocereus Blankii	Cactaceæ}
Cotyledon trieuclidata	Crassulaceæ}	Euphorbia echinata	Euphorbiaceæ}
Thujopsis laetevirens	Coniferæ}	Aralia sp. Bahia	Araliaceæ}
Selaginella eireinata	Lycopodiaceæ}	Philodendron sp. Trinidad ...	Araceæ}
Phyllanthus angustifolius ...	Euphorbiaceæ}	Dorstenia sp. Brazil.....	Moraceæ}
Polygonum platyelodon	Polygonaceæ}	Eranthemum sp. n. Brazil ...	Acanthaceæ}
Peperomia sp. Brazil	Piperaceæ}	Grevillea sp.....	Proteaceæ}
Nematanthus longipes.....	Gesneraceæ}	Aeacia chordophylla	Leguminosæ}
Haworthia planifolia	Liliaceæ}	Euonymus latifolius	Celastraceæ}
Cotyledon(Echeveria)agavoïdes,Crassulaceæ}		Hedera canariensis var.	Araliaceæ}
Gymnostachyum Verschaffeltii Acanthaceæ}		Ilex Aquifolium var.	Aquifoliaceæ}
Echites rubro-venosa	Apocynæ}	Osmanthus Aquifolium var..	Oleaceæ}

— M. DEHERAIN has recently addressed to the French Academy of Sciences a note on the *Decomposition of Carbonic Acid by the Leaves of Plants*, under the influence of light. The same decomposing faculty had been attributed by some observers to all the luminous rays of equal intensity, while others had affirmed that more oxygen was disengaged from plants lighted by yellow and red rays, than by those which were lighted by blue or green. In former researches, M. Déhérain had demonstrated that evaporation was more active in plants exposed to yellow and red lights than in those exposed to green and blue. This coincidence he regarded as establishing a connection between the two vital functions of the leaves,—the evaporation of water, and the decomposition of carbonic acid by the disengagement of oxygen.

— REPORTS on the *Vine Disease*, in France, lately published by the *Société des Agriculteurs*, state that certain premonitory instances of the malady

were noticed in 1866 and 1867, but it was not until the summer of 1869, a season of remarkable heat, following upon a severe winter, that the evil assumed proportions the magnitude of which have been steadily increasing ever since. The disease is confined to two districts, viz., the valley of the Rhone and the department of the Gironde. In the latter, the damage is of limited extent. The Médoc country has escaped altogether; but in the former the results have been truly deplorable, the crops having been reduced to one-tenth of the average of former years. On the right bank certain districts have hitherto escaped; but on the left, which possesses a different geographical conformation, wide plains and valleys watered by numerous streams, the disease has been almost universal. Out of 60,000 acres in Vaucluse, 20,000 have been utterly ruined. Around Bouquemard and in Le Gard entire vineyards have been grubbed up, and the sticks sold as fuel at 4d. per cwt. The greater the distance from the banks of the streams, the less severe the ravages appear to be. Everywhere the symptoms are identically the same—healthy plants die off suddenly without any apparent cause, the stems turn black, the leaves fade and drop off, and close examination shows that the roots are rotten throughout. The whole of a vineyard is not attacked at once; the disease appears to establish itself in a number of independent centres, from whence it radiates rapidly in all directions, until the entire area is infected. An account of the insect to which this terrible disease is attributed, will be found at p. 246 of our last year's volume.

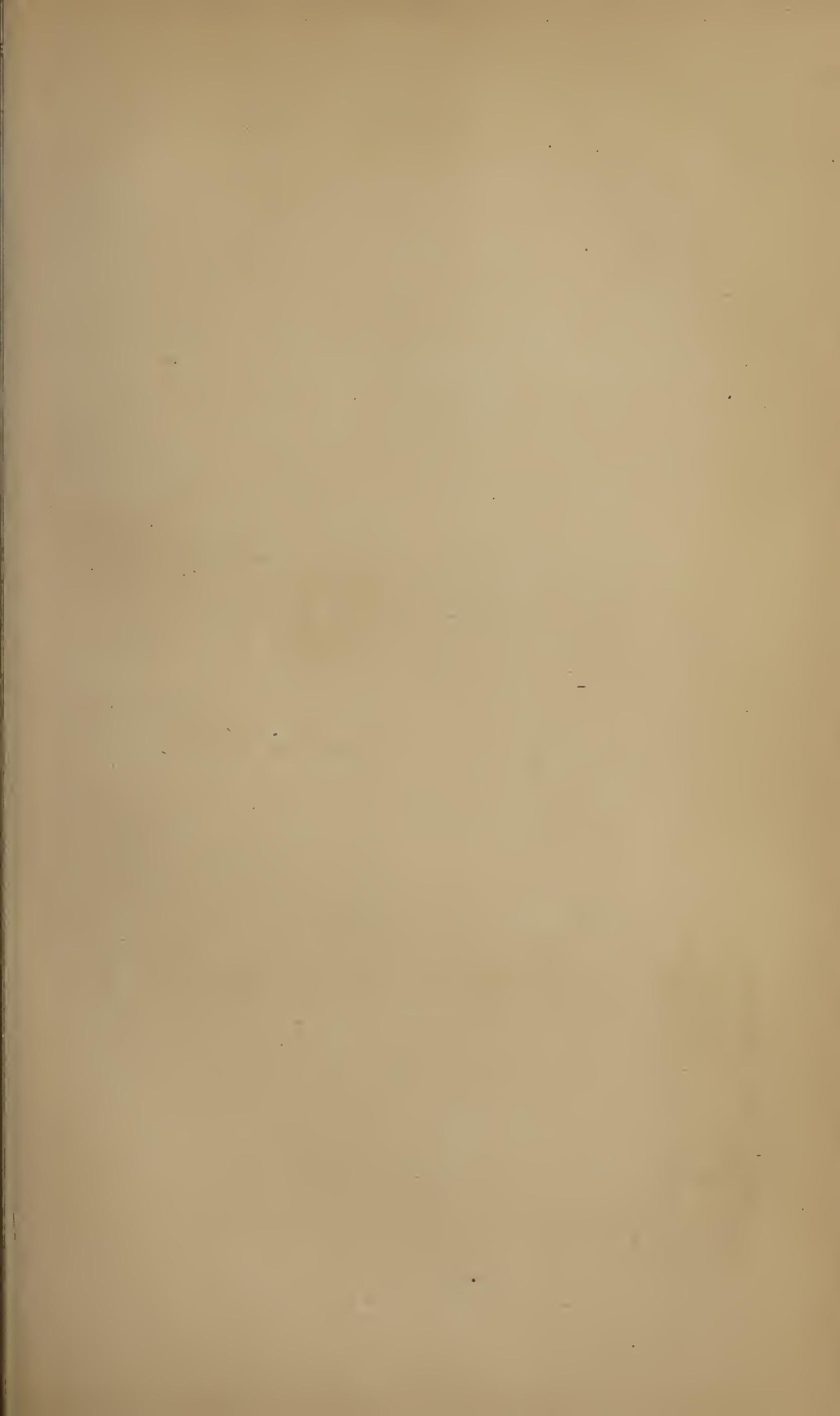
— In Canada, a kind of preserve called *Apple Butter* is made in large quantities; it keeps well, is in continual demand, and is made thus:—The juice of apples, as pressed for cider, is boiled down until it reaches a certain degree of concentration; it is then added to apples—pared, cored, and cut in small pieces—and the whole is stewed down into a mass, taking great care not to burn it. It is very good, always ready at hand for pies or tarts, or to eat at ordinary meals, and is wholesome when people are used to it, although rather an active cathartic when they are not. The kinds of apples require to be skilfully selected, the sweet kinds modifying the acidity, and even the acerbity, of other kinds which keep well. This Apple-butter is made by the barrelful.

— CERTAIN Improvements in the Construction of Horticultural Buildings have recently been patented by Mr. Ayres, of Nottingham. These structures are described to consist of imperishable roofs formed without sashes, sash-bars, putty, or paint, or any woodwork outside—consequently no painting will be required. The floors, plant stages, and side or partition walls are made of slabs of cement concrete, strengthened so as to bear any amount of pressure, and yet admitting of being perforated for the air to circulate through them, panelled to hold water for evaporation, or for the pots to stand in, or perforated and panelled, while they can be manufactured of any required strength or size, and in the place where they are required to be used, and they can also be left rough for ordinary use, or be finished plain or in colours with a face like polished marble. For glazing, flat glass of great strength, jointed with transparent cement, or glass with the sides turned, is used. The advantages claimed are,—economy in first construction, perfect portability (when desired), and when manufactured in iron galvanized, a house so imperishable as to wear for a lifetime without further cost.

— THE following method of *Preserving Peaches* has been recommended in the *Gardeners' Chronicle*, by Mr. Smith of Exton Park, the excellent recipe being from the *chef de cuisine* there:—Split the Peaches in halves; scald them in thin syrup to remove the skins; arrange the halves in clean pint tins filled up with rather thick syrup, made of 2 lb. sugar and one pint cold water, boil four minutes; have the tins covered; put them into a vessel, pour sufficient cold water on to them to reach within half an inch of the top. Submit them to twenty minutes' gentle ebullition. Keep in a cool place for use.

Obituary.

— BARON CHARLES VON HUGEL died at Brussels on June 2. He was an Austrian nobleman, who had rendered good service both to botany and to horticulture, and latterly has filled the office of Minister Plenipotentiary at Brussels. To horticulturists he is known from his researches in Australia, and as founder of the Imperial Horticultural Society of Vienna.





J. N. Fitch, imp.

Primula cortusoides; vars.
1. amœna. 2. striata. 3. grandiflora.

PRIMULA CORTUSOIDES AND ITS VARIETIES.

WITH AN ILLUSTRATION.

PN the large Japanese varieties of PRIMULA CORTUSOIDES, so much superior to the ordinary form as to appear quite distinct, we have acquired some of the choicest and most beautiful materials for ornamenting the hardy flower garden. The public are indebted to the late Mr. John Gould Veitch for the introduction, and to the Messrs. Veitch and Sons for the distribution of these charming hardy plants, and our own obligations are due to those gentlemen for the opportunity of preparing the accompanying figures of three of the best and most distinct, namely, *AMœNA* (fig. 1.), which is of the richest magenta, with white centre, and has notched, but otherwise entire segments; *STRIATA* (fig. 2), a pretty lilac, which has the margin of the flowers toothed, and the colour prettily striated; and *GRANDIFLORA* (fig. 3), remarkable for its drooping concave or cup-shaped form, and for having the inside almost pure white, while the outer surface is of a rosy purple hue. The variety *striata* has been sometimes called *lilacina*, a name which is now cancelled. Besides these, there are *alba*, with pure white blossoms, and *albida*, with blossoms of a grayish white, and of the same drooping type as *grandiflora*. We may refer to an article in our volume for 1867 (p. 172), for additional information, merely observing here that these Primulas, grown in pots, form excellent decorative plants for cool houses in spring, and inviting attention to the following observations, which refer chiefly to the more brilliant variety *P. cortusoides amœna* :—

These are most welcome additions to the spring flower borders, or beds, or to the greenhouse shelf. By wintering them in a cold pit they will commence to flower in March, and have a striking appearance among greenhouse and conservatory plants. Their long slender foot-stalk raises them high above double-white Chinese Primroses, and, perhaps, there is no position where this tallest among Primulas looks more charming than when bending its pretty flower down over the white masses of double snowballs which stud the common double-white Chinese variety, or such splendid improvements upon it as *candidissima*, and others. I used to think *P. cortusoides* well worth growing for such uses, but it must at once give way to *amœna*, which is so great an improvement upon it that this, the original type, looks weedy beside it. Until I get up as good a stock of *amœna*, I mean to reserve it for inside decoration, and be content with *P. cortusoides* outside. Few plants are more effective in pots, with their exquisite tuft of leaves resting on the surface of the pots, and reflexing over their red rims, and their stalks rising so elegantly, and the flowers placed so lightly, and beyond crowding distance. And then the little cups are so delicately, tenderly, lovely. I have not yet flowered the white varieties, but I believe there is one of both sorts; these, however, will not equal the coloured ones for effect. *P. cortusoides amœna*, well grown, would prove a charming single vase plant, or dinner-

table decoration,—it flowers so freely, and the flowers are so large and delicately charming. No one has been able to pass it anywhere without a note of admiration. Neither fat Camellias, spotlessly pure and brilliant Azaleas, nor gay Cinerarias have received anything like the petting that this new pet has had in our glass verandah.

These Primulas will give a new and distinct character to the spring garden. I find *P. cortusoides* is much higher-coloured out-of-doors than in, and we have nothing like it outside either in habit or colour. It would be beautiful among or near to the common Primrose, but perhaps the best arrangement for it would be to form a cushion of the common or double-white or new yellow Primrose, and use the *P. cortusoides* as the pins for it. This effect is as charming as it is novel; but it would look well anywhere, excepting perhaps against Honesty, Aubrietias, or Forget-Me-Nots, for the colour being peculiar, it should not be placed against lilacs or blues.

P. cortusoides amœna is much brighter, larger, and lighter, and would look distinguished, and hold its own anywhere or against anything. It would take a great deal of a very good thing to throw that into the shade. The stalks are somewhat shorter out-of-doors; still they are very long, and the plant does best and looks its best in a sheltered position. Placed in the teeth of the wind, it would be likely to be battered down with the hails of March, or laid flat with heavy rains. It takes, however, very rough weather indeed to injure the plants. The flower-stalks should not be tied up; this stiffens and takes away one of their chief charms. They are perfectly hardy, the improved variety as hardy as the common, though perhaps it will not bear quite so much hard treatment, as the flowers are so much larger. They are increased by division of the roots, or by seed, when and where it ripens, but from offsets alone a good stock may speedily be got together, as it is a plant of free growth and active habits. If not flowering, it is doing the next best thing, pushing out roots, or forming or gathering crowns. It will be a long time before any holder of *P. cortusoides amœna* will cry, "Hold, enough!"—D. T. FISH, F.R.H.S.

WINDOW PLANTS.

I.—THE CREEPING CEREUS.

WINDOW Gardening having recently been brought into general notice with the prominence it so well deserves, it has occurred to me that a few plain instructions for the culture and management of such plants as have been found well adapted for the purposes of window-culture would be useful to amateurs, or to such as require to have the general details of cultivation simplified. I cannot do better than commence with that fine old window plant, the Creeping Cereus (*Cereus flagelliformis*), introduced into this country from Peru in 1690; and taking into consideration how little trouble it entails in its management, and how particularly well it is adapted for window-culture, it is

strange that one so seldom sees it in cottage windows. In the course of my annual examination of cottages and cottage gardens through a large district, I stumble on a plant now and then, and it is sure to be the cherished pet of the cottager's wife, and generally trained out on a trellis made of thin strips of wood, but sometimes suspended from the top in the centre of the window, in which position it develops itself in a more natural and consequently more beautiful manner than when it is formally trained on a trellis; the latter mode, however, is not to be despised, as when trained horizontally across the lower part of the window it forms a charming screen, and is always certain to create interest on account of its peculiar appearance.

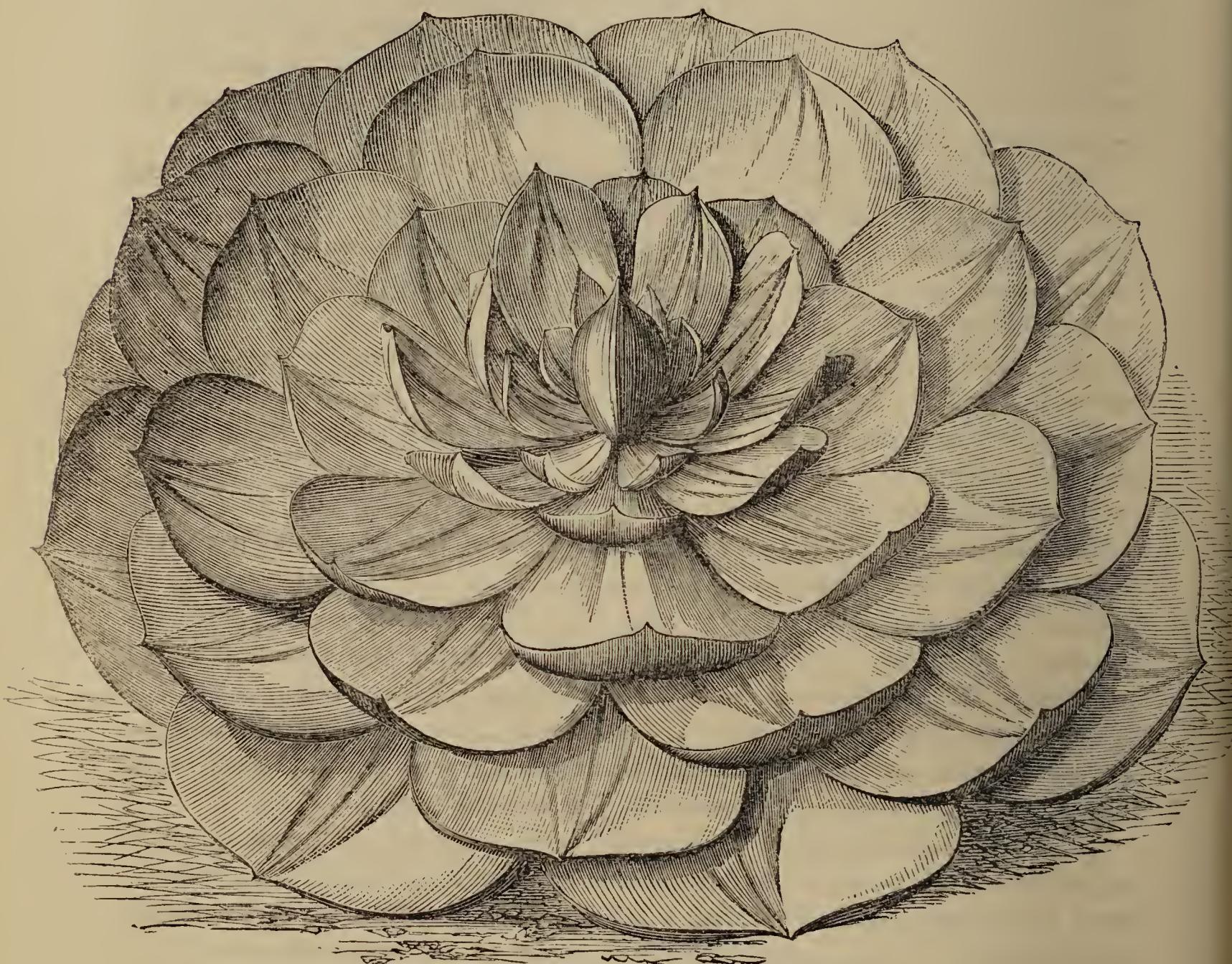
The best compost for this tribe of plants consists of about equal parts of old mortar, brick, and lime rubbish, leaf-mould, and finely-broken charcoal, or peat charcoal if procurable, to which may be added a small proportion of loam. These several ingredients should be intimately mixed, but not sifted or broken too finely, as the compost is best used in a rough state.

The plants are propagated by cuttings, which should be separated from the parent plant with a sharp knife, and laid out to dry for a week or ten days, or even more if the cuttings are very young and soft; the reason being, that if inserted without previously drying up a portion of the superfluous sap, the chances are that the cuttings will rot away instead of rooting into the soil. A 6-in. pot is a very good size to grow them in, and this will accommodate six cuttings round the rim, thus insuring a good specimen from the first, as they may be retained in the same pot for several years. In filling let the pots have at least two inches of broken crocks for drainage, and insert the cuttings in a diagonal direction, with the base of the cuttings tending towards the centre of the pot, the points leaning outwards. July is the best month of the year to put in cuttings, as they are then tolerably well ripened, and there is a good chance of their being well-rooted by the time the dormant season of winter comes on.

It is best to use the soil in a moderately moist condition, and not to give any water for a week or so, when a moderate quantity may be given, say twice a week, until growth commences, after which the quantity applied and the frequency of application will depend on the growth made, and the dryness of the atmosphere. In dry weather during free growth they may be watered freely, but less freely in moist weather; they should, however, never be watered unless the soil is dry, which may generally be ascertained by feeling; and absolute dryness is necessary for plants kept in a window from October to March, if the interior atmosphere is cool, but if very dry and parching this must be taken with a reservation, and a little water applied in mild weather, when the rods indicate its necessity by shrivelling too much.

Training may be carried out on a horizontal trellis of wire or light wood painted green, and made to fit the size of the lower part of the window; or the shoots may be spread over an upright trellis so as to allow of other plants being kept

in the window with it; or pot and all may be suspended from the top, and the shoots allowed to fall gracefully over the sides of the pot. In this latter way two or three pots may be suspended in the window, and will have a very pretty effect. In handling the shoots gloves should always be worn, on account of the minute prickles.—JOHN COX, *Redleaf*.



ECHEVERIA GLAUCO-METALLICA.

SINCE the new style of garden decoration, to which the term "sub-tropical gardening" is applied, has come into favour—a favour which, when properly regulated, it well deserves—the merits of some of the species of *Echeveria* have been more generally recognized. The little tufted-growing *Echeveria glauca* forms one of the choicest of edgings, growing well too, if not, indeed, best, when planted horizontally against the raised edges of the beds. The bolder *Echeveria metallica*, with its singular coppery hue and its remarkable contour, is equally useful for bolder effects, and comes in especially well when grouped with some of the lower-growing surface-clothing succulents.

In the plant of which, thanks to Messrs. Veitch and Sons, we now offer an illustration, we have both the above useful species combined. It is called *Echeveria glauco-metallica*, and is a hybrid raised between *E. glauca* and *E. metallica*. It retains the rosulate growth of the former, but the effect of the cross has been to increase the size, so that the rosette of leaves is about thrice the size of that of *E. glauca*. Indeed, it is the largest of all the dwarf-growing stemless kinds, and to some extent it combines the deep glaucous hue of the one with the glowing coppery tint of the other. One of its great recommendations, in so far as regards its application in formal gardening, is that, although a very free grower, it never acquires a stem, so that the effect to be produced may always be relied on. The slender flower-scape, when it makes its appearance, grows about 12 in. or 15 in. high, and has the general character of that of *E. glauca*, the flowers being of a similar bright orange-scarlet colour, but larger.

For summer bedding purposes, for which this plant will be found most useful, it is, however, the tufted rosette of leaves, rather than the flowers, which will be most useful. It was shown at one of the meetings of the Floral Committee in August, 1868, and was then awarded a First-Class Certificate.—M.

MULBERRIES FOR ORCHARD-HOUSES.

 VENTURE to recommend this old-fashioned, very much neglected fruit to a little more notice and attention; especially would I recommend it to a front position in the orchard-house. We are most of us fond of Mulberries in a stealthy sort of way; and although our visits to the old mulberry tree may be ever so secretly made, the stains of our sin always rest upon us, and tell tales. A mulberry tree or two is to be found in almost every old well-furnished garden, but the trees are all old,—we scarcely find young trees anywhere, and none at all in our modern, newly-made gardens. This shows that in olden time Mulberries were looked upon with more favour than now; and yet we like Mulberries—at least, as boys we did so. I like them still.

Why is the Mulberry neglected? It is not fashionable, we know. It has one fault—an ugly knack of dyeing our lips and fingers of a red and purple hue. It has another—the fruits as grown in our ordinary seasons are very often far from good; they are frequently so acid as to make one shudder, or else mawkish, pasty, and nasty. Properly ripened Mulberries, however, such as we have tasted in sunny France, or such as we can grow and have in abundance for ourselves in our orchard-houses, are superb. That they are not first-rate in flavour on our open-air trees is in consequence of lack of heat, and through the effects of high winds and dashing rains, which cause the fruit to fall ere it is fully ripe. Grown in the orchard-house, they are exempt from all such dangers,—the fruit hangs until it is dead-ripe, until decay commences, in fact, and then it is really worth eating. The flavour is infinitely richer and superior in every way, more juicy, the whole pulp melting away like ice in one's mouth, and leaving none of the

hard core which is to be found in out-of-door fruits. There is no fruit at once so sprightly, sparkling, refreshing, rich, as a Mulberry ripened thus, and as we have tasted them this year, last year, and for many years, from a small tree in a pot in the orchard-house at Chiswick.

Mulberry trees do not naturally bear freely in a young state. Age seems to be required to give fruitfulness. In a pot, however, all this seems altered, for a very young plant will bear freely. A tree at Chiswick has been in constant bearing for fully fourteen years, having been sent so long since to the garden for exhibition by Major Clarke, and at that time loaded with fruit. This season the crop has been particularly fine, and the fruits have been large, and greatly relished by all the Fellows who have tasted them.

Mulberry trees grown in pots require nothing but ordinary attention, the same as required for a Plum. I have some recollection of Mr. Tillery, of Welbeck, recommending the pot-culture of Mulberries in your pages, which I now, at this late period, have the pleasure to endorse. Let us, then, grow Mulberries in pots, and thus secure another charming feature for our orchard-houses.
—A. F. BARRON.

THE GARDEN MENTOR.

SEPTEMBER may be considered the harvest month of the gardener's year, there being a great variety of fruits and vegetables fit for immediate use, or to be preserved for a future time. The weather is oftentimes fine in the early part of the month, but is generally rough and boisterous towards the end. The days now draw in apace, and vegetation already shows unmistakable signs of the cessation of active vitality.

KITCHEN GARDEN.—The long continuance of dry weather has been very unfavourable for all kinds of vegetables, particularly those for winter use,—*Cauliflower* for autumn, *Lettuces*, *Spinach*, *Celery*, *Broccoli*, and *Winter Greens* of all kinds have suffered more or less, according to the soil and situation; every attention should therefore be given to these crops to encourage them to grow as long as the weather continues favourable, by frequently stirring the soil between the plants, and by earthing up carefully as they require it. The *Spinach* sown last month should be thinned out to about six inches apart. *Celery* should be carefully earthed up as it requires it, in dry weather. The general crop of *Onions* should be pulled and harvested, and this will give ground to plant the main crop of *Cabbages* from those sown about the middle of July. The ground should be well manured and dug deeply before the Cabbages are planted; in the North they should be planted not later than the middle of the month, in the South they will do well planted a few days later. A good quantity of *Brown Dutch*, *Hammersmith Hardy Green Cabbage*, and *Black-Seeded Bath Cos Lettuce* should be planted on warm borders, at the foot of south walls, and in other sheltered places for winter and spring use. Thin and hoe between late crops of *Turnips*.

Tie up *Endive* and *Lettuce* to blanch. Early kinds of *Potatos* should be taken up and housed. Gather the fruit of *Tomatos* as it ripens, and expose those that are not ripe to the influence of the sun, by removing such leaves or shoots as shade them.

Sow: Tripoli Onions at the beginning of the month; Lettuces at the beginning of the month in warm borders to stand over the winter; Radishes on warm borders; Mustard and Cress on gentle hot-bed.

FORCING HOUSES.—*Pines:* Towards the end of the month, if the weather should set in cold, a little fire-heat will be necessary to assist the Autumn fruit in swelling off and ripening; a high night temperature will not be required, but it should not fall much below 70°; water freely until the fruit begins to ripen. If the succession and young plants were all shifted last month as recommended, and the beds partly or wholly renewed, the only attention they will now require will be merely to give air freely in the fore part of the day, closing up early in the afternoon, and watering when necessary; fire-heat will not be required, unless very cold weather should set in. ***Vines:*** Late Grapes will now require constant care to keep them in good condition, especially if very wet weather sets in. All outside borders should if possible be covered with lights or wooden shutters, to keep them dry; light fires in the morning in damp or wet weather; give plenty of air at the same time, and spare no pains to keep a dry atmosphere. The vines in the early house, to be started in November, may be pruned now. ***Peaches:*** The trees in the late houses should be well syringed on fine mornings, and have abundance of air given, but be closed early in the afternoon warm and dry. The trees in the early houses which have ripened their wood may have the leaves removed, and be loosened from the trellis. ***Figs:*** Give abundance of air, and keep a dry, warm atmosphere to mature the wood. ***Cucumbers and Melons:*** Look frequently over the plants, stop all superfluous growths, and remove decaying leaves. Melons approaching maturity should not have much water; maintain a steady, regular bottom-heat by attention to the linings.

HARDY FRUIT GARDEN.—*Plant Houses:* Continue to gather and store various fruits as they ripen on dry days; too much care cannot be taken to prevent bruises; and be sure that the kinds are ready for gathering. A very simple but sure test for *Apples* and *Pears* is to cut one, when if the seeds are brown or turning brown they may be gathered. Blackbirds and thrushes have been very troublesome this season, in consequence of the scarcity of other food. Prepare the *Fruit-Room* for autumn stores; this apartment should be cool, dry, and not subject to much variation of temperature.

FLOWER GARDEN.—*Plant Houses:* If these have been put in proper order, the plants may be got in at once, as the young tender shoots of the summer's growth are extremely liable to be injured by the frost; when they are housed, as much air as possible should be given during the day, and even at night, as long as the weather continues mild. ***Soft-wooded Plants*** out-of-doors should be under protection before the end of the month. ***Zonal Pelargoniums*** in flower must be

kept well watered ; some of the double-flowered kinds are very useful for decorative purposes, particularly the newer ones. All *Hard-wooded Plants* out-of-doors should be housed before the end of the month ; the plants should not be set too close together, and they should have all the air possible. If air is too sparingly admitted at this season, when many of the plants have not yet finished their summer growth, it will cause them to produce weak and tender shoots, which will be liable to damp off at a later period, when the house must be unavoidably kept close on account of the severities of the weather. Water should be liberally supplied to the plants after they are first housed, as the dry boards on which they stand, as well as the elevated situation and freely circulating air, occasion them to require more than when they stand on moist earth.

Pits and Frames.—Get these thoroughly cleaned and repaired, so as to be in readiness for the reception of tender plants as soon as bad weather sets in. Shift any *Cinerarias* that may require it, and keep the plants well watered. As long as the weather continues mild give all the air possible to plants in pits and frames. Most of the cuttings of *Pelargoniums* put in last month will now be fit for potting off ; when potted, they should be placed in a pit or frame, and kept close and shaded until they have made fresh roots. A pit or frame should now be got ready for *Neapolitan Violets* ; it should be filled to within about a foot of the glass with half-rotten leaves and dung well trodden down, and on this should be placed about 6 in. of nice light soil ; the plants should then be lifted with good balls, and planted about one foot apart every way. When planted they should be well watered, and afterwards about half an inch of dry soil should be spread over the surface, in order to keep down the damp until the plants are firmly established.

Out-Doors.—When the weather is fine, the flower garden is generally in great beauty during the early part of the month, but towards the end short days and cold nights begin to tell on its appearance. Spare no pains to keep up its beauty as long as possible, by picking off all decaying leaves and seed-vessels ; stake and tie up *Dahlias*, *Salvias*, *Asters*, *Gladioli*, and other tall-growing, autumn-flowering plants. No time should be lost in getting a good stock of cuttings of bedding plants put in. *Calceolarias* generally do best put in in October ; they do not then flag, as they do when taken earlier. *Hardy Annuals* to stand through the winter should now be sown.—M. SAUL, *Stourton*.

McLAUGHLIN'S GAGE PLUM.

HIS may be called a newish Plum, for although we have had the name presented to us in many fruit-lists—nurserymen's and others, it is not to be found, as yet, in many gardens or collections of fruit. That it ought to be so, we venture to affirm ; that it will be so, we venture to assert. Few who have seen this plum fail to admire its appearance. It is both large and showy, and few who have tasted it but like its quality. It is juicy, melting, and rich.

The fruit is of large size, roundish-oblate in shape, like that of a small flat peach, the diameter, which reaches from $1\frac{3}{4}$ in. to 2 in., exceeding the depth, with a deep suture on the side and slightly hollowed at the apex. The skin is thin and tender, of a deep golden colour, dotted and speckled on the exposed side with deep crimson, like Jefferson, and having a thin bloom. Stalk $\frac{3}{4}$ in. long, inserted in a small cavity. Flesh adhering to the stone, deep yellow, very juicy and rich. Midseason.

This is in all respects a fine plum. The colour, texture of flesh, &c., more nearly resemble the Jefferson than those of any other variety. It is a cling-stone also, like the Jefferson, which is a slight disadvantage. The shape of the fruit is, however, very different, and it is larger, and possesses more of the Greengage flavour. It is a robust-growing variety, and bears freely. For orchard-house cultivation, and for pot-culture, this variety is exceedingly well adapted, as it succeeds well under these conditions. Some fruits which we have grown this season in pots have been exceedingly handsome, and of most excellent flavour.—A. F. BARRON, Chiswick.

THE HOUSELEEKS.

OWN gardens have certain plants that do well in them, notwithstanding their excess of soot and lack of sunshine. The Temple Gardens, in the very heart of London, have been the admiration of thousands by reason of skilful management, and a due selection of plants in which the vital principle was strong. Even town windows, bleak and short of breadth as they are, as well as being stony and dry, are yet capable of adornment with plants. The Common Houseleek (*Sempervivum tectorum*) comes under neither of the above divisions, but belongs to the “Roof Garden.” This fine old succulent plant has been well named *Sempervivum*, for there seems to be no end to its life. When I had been away from my father’s house for more than twenty years, I found the old Houseleek in good condition, although many a colony of young plants had gone out from this parent stock. The plant flowers, and seeds, and sends out offsets, and yet the patch on the roof seems only a little wider when the lifetime of the owner has passed away.

In the ancient Herbals much is said of the “virtues” of this plant, but in our day if it will only serve to ornament the angle of a thatched roof, or show its fat leaves and flesh-coloured flowers by some garret window, or fringe the coping of a division wall where nothing else could live, it will answer our purpose. It has little in common with other plants, for though no parasite like Mistletoe or Dodder, it scarcely takes to common earth; its life is more like that of some ferns, such as the *Polypodium vulgare*, or the Wall Rue (*Asplenium Ruta-muraria*), than that of ordinary flowering plants; it certainly gets the rain of heaven, and the wind; but beyond a little dust in dry weather, it receives little else from the earth but a lodging, and that so high and dry that it has to suffer the

extremes of all weathers, being moored in the very teeth of the tempest. A month's burning sunshine, or three months of hard frost, pass over its evergreen head without damaging a leaf. A little mud made of clay and stable dung makes an excellent compost, and a corner of the coping of the gable of the house, close to the chimney, a good site for this old-fashioned favourite.

In the pleasure-grounds the hardy *Sempervivums* may all be cultivated on the sloping edge of a rock, but the plants are quite out of place when planted on level ground; and except for exhibition or for sale, the Houseleeks have no business in pots. They are ornamental all the year round, and never disgrace their standing. When they flower they do it freely; but here let me hint that flowering is not their *forte*; they look far better in their working dress than on fête days, for like the American Aloe of notoriety, the Houseleek wisely fills its sacks first, calmly collecting materials it may be for years, so that when it does run to flower and seed the cost of propagating its species seems to have been fairly counted. Those who know plants best will agree with me that succulent plants are generally destroyed by the slightest frost, and, therefore, the Houseleek, which withstands the extremes of heat and cold, proves itself to be no ordinary sample of the British Flora. It is called in Scotland by the quaint name of *Foos*, but for what reason I know not. *S. arachnoideum*, when grown in single heads in thumb-pots, is a great curiosity, and has long been a pet in the miniature collections that children play with, the pot and plant being less than the size of a hen's egg.

Hardiness, then, may be noted as one of the Houseleek's greatest virtues, and endurance may be set down as another important claim on public favour, for when once planted it may safely be left untouched for many years. The thought of watering such a plant or manuring it would be out of the question, for dryness is the very life of it, and stirring the soil about it or any like officious meddling would be madness, for the roof garden admits of no such frivolity, the burly Houseleek lives and grows fat upon aerial food. The roof garden must have its plants put out of harm's way; they are only to be looked at, and need no rearrangement at shorter intervals than seven, or even fourteen years. Cats, that are such a nuisance to plants on balconies and in windows, do not meddle with *Sempervivums*, as they do with musk and grass and many other plants.

This is truly a household plant; in thousands of instances it is to be seen astraddle on the ridge of what we delight to call our home, and what housewife, worthy of the name, would allow her clump of Houseleek to be molested? Books are written on the management of household pets—silkworms, singing birds, poultry, tame rabbits, guinea pigs, and the like. Surely, then, the jolly, fat Houseleek deserves a place among living pets, for it is so tenacious of life that when the hard frost in Scotland killed the Whins it never harmed the Foos. Persons once thoroughly imbued with the mania for bedding plants would reckon it next to insanity to admire the elegant fronds of flowerless ferns; the grower of exotic orchids would think lightly of lowly Alpine plants on the

mountain side, only a little below the line of unthawed ice and snow, notwithstanding their great beauty ; and even Linnaeus is said to have been quite enraptured at the sight of the common furze in bloom, growing profusely as a weed on waste land ; but after all the displays of flowers that I have seen at exhibitions and in private collections, I cannot help saying that acres of golden whin blossom, and square miles of various-coloured heather bells, are glorious sights when seen where they are perfectly at home. It is no wonder, then, that I set perhaps undue store by the clump of Houseleek which I found at home after twenty-two years' absence, for it seemed to welcome me back, and it had literally a green-old-age look about it that indicated happiness. I had planted a wild cherry tree in the garden no thicker than the quill I am writing with, and it had grown into a large tree, cumbering the ground, and shading a neighbour's garden ; but the Houseleek had never been in any one's way, and had not risen into any undue importance.—ALEX. FORSYTH, *Salford*.

PEAR PRINCE ALBERT.

 FEW years ago I was induced, by the very favourable description given of it in various quarters, and in different catalogues which came to hand, to purchase this new variety of Pear. I find, however, so far as my experience has gone, that it is, as a dessert pear, a very worthless variety. Following the hints attached to its recommendations, that it "required a warm place to grow in," &c., I planted a tree against a wall with an east aspect, and in a very favourable position both for growth and fruit-production. The tree has branched out most evenly on either side of the main stem, into sixteen pairs of branches, and forms in itself a very handsome object ; but the fruits which it has borne for three consecutive years have been utterly worthless. It will last on till midsummer of the following season, without showing symptoms either of decay or of ripening, so very coarse-grained is the flesh.

Now, a question arises in regard to these new Continental varieties, which are ever and anon sent over here with most enticing characters, namely—whether the difference between our climate and that from whence they are introduced, and in which they are said to have been proven or tested, is sufficient to account for such great disappointments. For there can be no greater disappointment in gardening than that of giving a somewhat high price for a new fruit which is said to exceed in merit those you are already possessed of, to give assiduous care and attention thereunto for five, or six, or seven years, and then, when both one's employer and oneself are expecting to reap the return so well earned, to find that means, labour, space, hopes, and anticipations are all destroyed or wasted.

I admit it is a moral impossibility for our own nurserymen to know for certain the goodness or otherwise of these introductions, and I exonerate them from all blame in the matter ; but I do hope that some plan will be found whereby to test the merits of all such new introductions, so that we may have some means

of knowing the truth before our walls are deprived of good old varieties to make way for rubbish. There can be no more fitting place for clearing up these points than the garden at Chiswick, and I know Mr. Barron would not mind the trouble, if room for such a purpose can be found within the greatly reduced area of the garden there.—**WILLIAM EARLEY, Digsowell.**

ERICA OBBATA.

EHIS beautiful Heath, if not the best, is certainly one of the best of the genus, and is worthy of a place in every collection, however limited. However, from its being so seldom met with, I am under the impression that it is considered a difficult variety to cultivate, though such is by no means the case, if the directions here given are properly followed out. Select some good fibry peat, let it be broken up into small pieces, then add sufficient silver-sand to keep it porous, and mix the whole well together. Take a pot one size larger than that the plant is to be removed from, give ample drainage, and place some of the rougher portions of the peat on the top of the broken crocks provided for drainage, in order to keep it in good working order. These points, together with firm potting, reveal the secret of the successful cultivation of all Cape Heaths. Therefore, when potting, it is requisite to have a piece of board or stick of such thickness as can be worked freely between the new pot and the ball of the plant, in order to get the fresh soil firmly pressed down around the old ball. Pay proper attention to watering, and keep the plants well exposed in the open air till the end of September, when they should be placed in a cool greenhouse, where plenty of light and air will pass freely to them. As soon as the blooming season is over, place the plants again in the open air, and allow the sun to shine freely on them. Growth thus obtained is seldom subject to the attacks of mildew, and the bloom will be abundant and fine. In case, however, mildew should make its appearance, dust with sulphur immediately. Above all, pay careful attention to watering and to firm potting, for more Heaths are destroyed from improper attention to these two points in their management, than from any other cause whatever.—**H. CHILMAN, Somerley Gardens.**

A FEW COMING STRAWBERRIES.

FROM amongst several hundred seedling Strawberries which we have tasted and examined this season, the following are selected as those which have most struck our fancy, and seemed the most promising. The following four varieties may, indeed, be looked upon as real acquisitions, which we shall be glad to welcome when their owners think fit to introduce them :—

1. *Waltham Seedling.* A hybrid raised between Crimson Queen and Sir Charles Napier, and partaking, to a certain extent, of the characteristics of both parents, though in general outward appearance more nearly resembling Sir C. Napier, but sweeter and richer. The fruit is of about the same size, and pro-

duced in as great abundance, but the colour is somewhat darker, approaching a deep red; the flesh firm, juicy, rich, and very pleasant. Habit of the plant robust and vigorous. Leaves dark green and sturdy. A most extraordinary cropper, and a decided improvement upon Sir Charles Napier as to quality of fruit and vigour of plant. Raised by Mr. W. Paul, Waltham Cross, and selected out of several hundred seedlings, many of which possess points of great merit.

2. *The Amateur.* The fruit of this is of large size, and of very handsome appearance; the colour of a deep dark crimson; the shape roundish-obovate, and cockscombed; the flesh bright red, somewhat soft, but of very pleasant flavour. This extremely promising variety is a seedling raised by Mr. Bradley, the raiser of Dr. Hogg, Sir J. Paxton, and Oscar, whose name is thus an almost sufficient guarantee of its merits. Mr. Bradley states that it surpasses every other variety he has grown, both for size of berry and productiveness. It is very sturdy and robust in constitution, retaining the foliage well throughout the winter. The fruit commences to ripen about the same time as that of Sir J. Paxton, and the plant continues long in bearing. Recommended as being particularly suitable for amateurs who can only cultivate one variety.

3. *Duke of Edinburgh* (Moffat). This is a hybrid resulting from a cross between Keens' Seedling and Elton Pine. The fruit is very large, cone-shaped, and irregularly cockscombed; the colour deep dark crimson; the flesh dark, moderately firm, yet juicy and pleasant, but not particularly rich in flavour. Its large size and fine colour give it a noble appearance, which will make it a great favourite for market purposes. It comes into use the same time as Keens' Seedling, but keeps up a much better succession, affording fruit in a good state for four weeks. The habit of the plant is robust, and it is a most extraordinary cropper. Raised by Messrs. Moffat, fruit-growers, near Edinburgh. Received a Certificate from the Royal Caledonian Horticultural Society.

4. *Royalty.* This is a seedling raised from a cross between Black Prince and British Queen, both of which it considerably resembles in outward appearance. The fruit is of medium size, ovate in form, with a well-defined neck, the colour bright shining red; the flesh pale red, solid, rich, and very pleasantly flavoured. In general appearance this most nearly resembles Myatt's Eliza, although quite distinct from that variety. The plant is of vigorous growth, and an abundant bearer. Raised by Mr. Trotman, Isleworth. Received a First-Class Certificate from the Fruit Committee of the Royal Horticultural Society.—A. F. BARRON, Chiswick.

NEW CROTIONS OR CODIÆUMS.

E have on previous occasions alluded to the numerous fine varieties of *Croton*, or more correctly *Codiæum*, which were obtained in the South Sea Islands, by the late Mr. John Gould Veitch, some three or four years since, and several of which have now been sufficiently increased to be put into the hands of cultivators generally. We have already given illustra-

tions of some of these forms, and we are now able, through the courtesy of Messrs. Veitch and Sons, to add figures of two more of the finest varieties of the



FIG. 1.

series, namely, *C. Veitchianum* and *C. undulatum*, both of which are remarkably beautiful, and which are also strikingly distinct.

Croton or *Codiæum Veitchianum* (fig. 1) will form a magnificent plant, either for exhibition or home decoration. It is a stout-growing plant, with foliage of



FIG. 2.

large size, the leaves attaining a length of from 12 in. to 14 in., and being slightly waved at the margin. The young leaves are traversed by broad bands

of creamy-yellow, branching out transversely along the course of the veins ; and with age this portion changes to a lovely tint of rose or carmine-purple, the intensity of the colours increasing as the leaves become older. For breadth of surface, and clear and distinct markings, this plant is, we think, unequalled amongst its congeners.

Croton or *Codiæum undulatum* (fig. 2) is a very different plant from the foregoing, but equally beautiful. The leaves are narrower, and are very much undulated, which gives great variety to the rich tints they put on. The variegation in this case consists of numerous blotches and markings, which at first are yellow, gradually changing to pink and crimson, and in the mature leaves are of the brightest crimson, on a dark-green ground, the base of the petioles being of a very light green. It is of very free growth, and is said to have a magnificent effect by artificial light. There can, indeed, be no doubt that all these finely-coloured Crotons, in the form of young, single-stemmed plants of suitable height, will be most eligible subjects for the decoration of the dinner-table.—M.

SWEET-SCENTED FLOWERS.

No. III.—DAPHNE INDICA.

HERE we have one of those beautiful flowers that are so generally killed by kindness. Every person wishes to have it, not less for the appearance of the plant when well grown, than for the delicious aroma which the flowers exhale. Plant-growers differ as to its cultivation, some considering grafted plants indispensable, while others would rather have the plant upon its own roots. Much, however, of the success which should attend the cultivation of a grafted plant will depend upon the perfect health and vigour of the stock upon which it is worked. Sometimes the common wood spurge (*Daphne Laureola*) is used, but I have found *Daphne pontica* to form the best stock. These should be thoroughly established in 3 or 4-in. pots, and the grafting may be performed either in the autumn, when the wood of the season is sufficiently firm and ripened, or in the early spring, after the plant has done blooming. In the former case, the grafted plants, after having the graft neatly and firmly fixed, and the wound made air-tight with a coat of cold grafting-wax, should be placed in a cold frame, or pit, under the protection of a close-fitting bell-glass or hand-light, keeping the roots sufficiently moist, but not syringing the plants more than once a week, when the glass should be left off until the foliage has got rid of the superfluous moisture. In spring grafting, it is advisable that the stocks should be placed in a gentle heat to excite them into growth before they are grafted, and if at the same time the plant from which the grafts are to be taken can be placed in a similar temperature, it will be well, as then the stock and scion will be in the same state of growth, and the chances of success will be much increased. In the hands of an expert workman, the grafts need not exceed an inch in length, half to be attached to the stock, and the other half, which may have two or three leaves and buds,

being left to form the plant. What is called side-grafting, with the head of the plant left on until the graft has taken, is the best, as then the head may be gradually reduced until the whole force of the plant is concentrated on the graft. Of course, plants that have been growing in heat must be kept in heat after they are grafted, giving them the protection of a hand-light in a warm pit or forcing-house until the swelling of the buds shows that the grafts have taken. Then gradually give air, until in the course of a week or ten days, the young plants, being properly hardened, may be exposed to the atmosphere of the house.

Cuttings of the *Daphne indica* are best put in in the autumn, when the young wood is something more than half ripe. Small side branches of about one inch long, if they can be procured, form the best cuttings ; but if not, then larger pieces may be cut into portions of about an inch each. In preparing the cutting pot, let it be thoroughly well drained ; place over the drainage a layer of nice fibrous loam, made quite firm, and over that a thin layer of silver-sand. In this the cuttings may be inserted, not too thickly, and then covered with a bell-glass. Keep the cutting pots in a cool, close propagating pit or frame for a month or six weeks, by which time they should be nicely cicatrised ; and if they are then placed in a gentle heat, roots will be immediately formed. It will not, however, be wise to pot the cuttings off until after Christmas, and then, if placed in a close and gentle heat, they will immediately start into vigorous growth.

The secret of growing this charming plant—and it is the only secret in its management—is the fact that it abhors composts and nostrums. Give it good unctuous loam full of fibre, and it will grow like a willow ; nurse it with peat, leaf-mould, manure, &c., and, like other over-petted things, it will not grow at all. This may be considered the reason why ill-grown plants are the rule, and well-grown plants the exception. Take a nicely grown plant with three or four branches in early spring. Place it in a temperature of from 50° to 60° ; in a fortnight or three weeks it will show indications of growth. Then pick out the point of each shoot, which will cause duplicate branches to be produced, so that you may have eight or twelve of these. When the young branches are about half an inch long, the roots may be examined, and, if in a fit state, the plant may be shifted into a larger pot. In doing this, take care that the pot is properly drained ; use the fibrous turf before mentioned, pot quite firm, and keep the plants somewhat close until the roots have taken to the fresh soil. The *Daphne*, in its growing season, delights in a moist, moderately warm atmosphere, and a free circulation of air. If a growth of 4 in. to 6 in. in length can be got by the middle of June, then the shoots may be again stopped, and a second growth encouraged. This will add to the compactness of the specimen, but its blooming will not be so certain as if the first growth had been allowed to mature itself.

The blooming of this plant depends entirely upon the thorough maturation of the wood, and to that end it is better to rest satisfied with an early growth, rather than, by forcing a second, to lose the chance of bloom. To ensure their

blooming, it is necessary that the plants be exposed to full light and free circulation of air to the end of June; and if after July, the plants being gradually inured, they can be exposed to the full sun and a southern aspect, the certainty of their blooming will be much increased. During the season of active growth the plants, if well rooted, may be assisted with weak manure or soot-water once or twice a week; and even in the blooming season an occasional dose of manure-water will be of service. The blooming season over, the plants, if not in heat, may be placed in a viney or other forcing house, syringing them lightly, but not giving much water at the root. As soon as the leading shoots show indication of growth, go over the plants, and pick out the point of each branchlet; keep them in the same temperature; and, as the buds begin to break, increase the supply of water. Should the plants require more pot-room, let them have it when the young shoots have just started into growth; keep them in a moist growing temperature for a few weeks, and then gradually inure them to full exposure in the open air as before directed. In this manner, using *only* the soil before described, the *Daphne* may be grown and bloomed as freely as a common pelargonium; but, unless it is distinctly understood that the plant must have a season of growth, maturation, and blooming, success in pots is impossible.—W. P. AYRES, *Nottingham*.

LADY'S SLIPPERS.—CHAPTER V.

OUR present subject, *Cypripedium villosum*, is a free-growing and free-blooming species, very useful in collections on account of its winter-flowering habit. It is a stemless plant, with ligulate acute sharply-keeled green leaves, which are upwards of a foot in length, and large showy flowers. The scape is shorter than the leaves, and shaggy with purple hairs; the bract compressed boat-shaped, and dotted with purple. The dorsal sepal is greenish, stained from the base upwards in lines and reticulations with dark-brown purple, the edge colourless and ciliated, the keel villous, and the intervening space glandular hairy; the petals are spatulate, undulated, unequal-sided, with a brown purple median line, the upper edge pale sienna, with faint purple lines, the lower half somewhat greener, smooth on both sides, varnished in front, ciliated, and having a tuft of purple hairs at the base on the lower side. The lip is of a dull pale yellowish ground-colour, with a suffused dash of brownish-purple, and varnished; it is upwards of 2 in. long, and $1\frac{1}{2}$ in. wide across the mouth, narrowed towards the apex, and with two obtuse erect side lobes obscurely veined with purple. The sterile stamen is greenish, obcordate mucronulate, slightly bearded at the base, papillose, and bearing near the centre a prominent blunt yellowish tubercle or horn.

The present species is perhaps the most robust-growing of all the Lady's Slippers in cultivation. It is a native of Moulmein, and consequently requires to be grown in the East Indian house. Like most others of this genus, *C. villosum*

is very easily grown into a good specimen ; and if such was not the case, it would amply repay any amount of extra labour, on account of its richly-coloured and highly-polished flowers, which form a distinct feature in a collection. It also continues a very long time in flower, and may be had in full beauty either in winter or summer—if during the first-named season, it should stand in the warm end of the stove or East Indian house, after growth is complete during the



autumn ; but if for summer and exhibition purposes, it may be retarded with ease and without injury, by placing it in a cooler temperature before its blooms begin to show, but not until its growths are thoroughly ripened.

The soil *C. villosum* delights in is a mixture of fibrous peat and sphagnum moss, in about equal parts, to which may be added with advantage a little good leaf-mould and silver-sand. Drainage must be perfect, and as it will require more root-room than the majority of this genus, I should advise the use of char-

coal as drainage material, because it is not so liable to get out of order, and is much lighter, and thus the pots will be more easily removed from place to place as circumstances may require. During the growing season it should be liberally supplied with water, both from the watering-can and the syringe, and although less will be necessary after growth is complete, especially from the syringe, yet at no season should its roots be suffered to feel the want of water. Thrips and scale will sometimes attack this plant, but a strict surveillance must be kept up, in order to destroy them immediately they make their appearance, either by fumigation or by hand-washing with soap and water.—B. S. WILLIAMS, *Victoria Nursery, Upper Holloway.*

NOVELTIES, ETC., AT FLOWER SHOWS.

ONE of the most interesting features at the meeting of the Royal Horticultural Society, on the 29th June, was a group of pyramidal-trained *Lobelias*, averaging about 2 ft. in height, and densely covered with flowers.

They were all seedlings, and had been raised and grown by Mr. Moon, gardener to F. Stanton, Esq., Lewisham. A Special Certificate was awarded for their good cultivation ; and the mode in which the plants were grown taught what a nice feature they might be made at flower shows. *Show Pelargonium Pollie* (Foster) received a First-Class Certificate ; it is a deep-coloured flower of a rich crimson hue, shaded with dark, has rich dark top petals, is dwarf in habit, and very free-blooming.

As is usual at the large provincial exhibitions of the Royal Horticultural Society, there was held a meeting of the Floral Committee at Oxford, to pass in review the new plants staged on that occasion. A First-Class Certificate was awarded to *Picotee Ne Plus Ultra*, a heavy pale-rose edged flower, with stout and finely rounded petals, and good substance ; this came from Mr. J. Payne, Worcester Cottage, Oxford. Both the leading *Verbena* raisers, Mr. Eckford and Mr. C. J. Perry, staged collections of new *Verbenas* on this occasion. Of Mr. Eckford's raising, the following flowers received First-Class Certificates : *Mr. Dodds*, pale pink, with rosy-violet centre, very fine pip and truss ; *Grande Monarque*, orange-red, with a dark shaded centre, fine hue of colour, and good pip and truss ; and *George Peabody*, bright reddish plum-colour, with large primrose eye, a fine and showy variety. Of Mr. Perry's flowers, the following received the same award : *John Laing*, pale rosy-carmine, with reddish crimson centre, very fine pip and truss ; *Perfection*, soft lilac-pink, fine rounded pip and truss ; *Mrs. George Prince*, pale pink, with orange-red centre, pip and truss of fine quality ; and the *Rev. C. P. Peach*, magenta-crimson, fine pip and truss.

On this occasion some things were provided for in the schedule that are very seldom found at flower shows. There was, for instance, a class for six *Delphiniums* in pots, the best of which came from Mr. Turner, of Slough. They contrasted in a marked manner with the old and indifferently grown plants that came from

other exhibitors, in that these were young and vigorously grown, with foliage of excellent quality, and capitally flowered ; the plants were in 8-in. pots, and the sorts were the charming pale blue *Bella Donna*, *L'Elegante*, with a noble spike of pale blue flowers ; *Madame Chaté*, very fine ; *Madame Stenger*, *Le Grand*, and *Imperial Blue*, a collection of very fine varieties. That this fine class of herbaceous perennials can be so cultivated in pots as to make valuable exhibition plants, was conclusively proved in this instance. *Herbaceous Phloxes*, in pots, were also nicely done, but not so successfully as the *Delphiniums*—though they may be. The best lot came from Mr. F. Perkins, Leamington, and consisted of *Mdlle. Trotter*, *Madame Rendatler*, very similar in character ; *James Veitch*, pale rose-crimson ; *Liervallii*, *Charles Rouillard*, and *Madame Marie Saison*. Messrs. Downie, Laird, and Laing came next in point of quality, with more evenly-grown plants, well bloomed, but the flowers somewhat small. The varieties were : *Mons. Linden*, *Mrs. Campbell*, *Madame La Comtesse de Malart*, *Major Stent*, *James Veitch*, and the *Deacon*. There are now to be observed in collections of perennial *Phloxes* some dwarf-growing kinds, and doubtless these, rather than the tall ones, will be grown another year. *Pentstemons* in pots were very creditably done ; and as the importations from the Continent during the past two or three years have given us some plants of very dwarf growth, combined with free-flowering properties, no doubt these also will be grown for pot-culture. Decidedly the best lot came from Mr. J. J. Chater, Gonville Nurseries, Cambridge, who had the following kinds : *Mdlle. Annie Rollett*, *Molière*, *Duc de Mexico*, *Grinchu*, *Nardy Frères*, and *Melanie Labouette*. *Lobelias*, of the *fulgens* type, and *Antirrhinums*, were very poorly done ; and *Pyrethrums* in pots were not represented. However, there is no reason to despair, and we will look forward to another year, hoping for better results.

There is much reason to believe that the beautiful genus *Lilium* is beginning to receive a larger share of public attention than has been given to it of late. At the meeting of the Royal Horticultural Society on the 3rd of August, a somewhat remarkable cross was exhibited by Mr. George Thomson, of Stansted Park Gardens, who has succeeded in raising a seedling *Lily* between *L. auratum* and *L. speciosum* (*lancifolium*). It was named *Purity*, and had the same form as the latter, but broader petals, and a flatter surface, the colour white, with numerous small crimson spots, and an exquisite fragrance ; the flowers were most like *speciosum*, while the foliage somewhat resembled *L. auratum*. At the same meeting, George F. Wilson, Esq., F.R.S., who deserves the highest praise for his persistency in endeavouring to popularize the *Lily*, exhibited *L. tigrinum flore-pleno*, whose flowers have several tiers of petals regularly overlaying each other ; also *L. Leichtlinii*, with flowers much reflexed, the colour yellow, spotted with black. To each of these First-Class Certificates were awarded. At a later meeting, Mr. Wilson exhibited the true form of *L. speciosum* (*lancifolium*), the flowers of which were heavily punctured with crimson, like *rubrum*, but there

was a distinct and well-defined margin of white, and, moreover, the flower-buds were shorter; also *L. Wilsoni*, a tall growing and very fine Lily in the way of *L. Thunbergianum*, but distinct from it (see 1868, 121). A First-Class Certificate was awarded to Mr. W. Bull for *L. tigrinum splendens*, with larger panicles of fine flowers, of a much greater depth of colour and with larger spots than usually seen. Some very fine varieties of *L. auratum* have also been shown; Mr. Turner, of Slough, received a First-Class Certificate for a finely marked variety, named *Charles Turner*; and Mr. Bull exhibited three fine forms, named respectively, *virginalis*, pure white, with yellow spots; *rubro-vittatum*, very fine; and *Brilliant*.

The rage for *Variegated Zonal Pelargoniums* appears to be subsiding, judging from the paucity with which new varieties were staged at the Royal Horticultural Society's Show on the 3rd of August. The best variegated zonal was the *Rev. E. R. Benyon*, a fine-looking, robust-growing, golden-edged variety, finely coloured, and not without some novelty of character. This came from Messrs. E. G. Henderson and Son, and was awarded a First-Class Certificate. This variety had been grafted on a strong-growing stock, and this had no doubt aided the fine development. The other sections brought nothing new, but it is worthy of note that in the class for Gold and Bronze Pelargoniums, Messrs. Downie and Co. had *Impératrice Eugénie* very finely coloured.

The supply of Hardy *Clematises*, which have been the subjects of a marked improvement during the past few years, is by no means exhausted. *Clematis Victoria* is a fine variety of the strain produced by Messrs. Cripps and Son, Tunbridge Wells, and has been awarded a First-Class Certificate; the flowers are of a deep purplish lilac hue, and finely formed. *Clematis Crippsii* has reddish mauve-coloured flowers, though somewhat dull-looking. The same award was made to Mr. G. Baker for *Clematis Gem*, evidently a variety of *C. lanuginosa*, with light mauve flowers. In *Hydrangea japonica speciosa*, shown by Messrs. E. G. Henderson and Son, we get a fine addition to the variegated-leaved types. This has a broad flame of cream along each leaf, which is margined with deep green; and used in any way, will, if constant, be most effective; it was deservedly awarded a First-Class Certificate. To the highly interesting and valuable group of hardy pictorial trees, *Catalpa syringæfolia aurea*, exhibited by Messrs. Cripps and Son, and awarded a First-Class Certificate, will be an excellent addition, the large bold leaves having quite a deep golden hue.

The useful group of dwarf-growing branching annuals is ably reinforced in *Godetia Whitneyi*, a Californian species, with a peculiarly short rigid-branching growth, and bright lilac flowers, spotted on each petal with lively red; it was introduced by Mr. William Thompson, of Ipswich, and received a First-Class Certificate.

There is no lack of new *Verbenas*, but probably owing to the drought, they appear to lack that full development observed in past years. In addition to those already announced, Mr. C. J. Perry received a First-Class Certificate for

Mrs. Boulton, white, with rich deep crimson eye, a fine exhibition flower. Probably for the same reason, or because growers are keeping them back for the coming show at the Crystal Palace on the 6th of September, seedling *Dahlias* have been sparingly produced. Mr. G. Wheeler, Warminster, has received a First-Class Certificate for *Marchioness of Bath*, pale ground, heavily tipped with deep rose, a flower of fine shape and substance. Mr. Keynes gained Second-Class Certificates for *Flora Wyatt*, a fancy flower of much promise, buff ground striped and flaked with dull red; and for *Incomparable*, yellow ground, heavily tipped with bright purplish claret. *Hollyhock Rose Queen*, a promising rose-coloured variety, from Mr. Porter, gardener to E. Benham, Esq., Isleworth, has also received a Second-Class Certificate.—R. D.

GARDEN GOSSIP.

THE Condition of our *Fruit Crops* for the present season has just been reported in a tabular form in the *Gardener's Chronicle*. From this it would appear that fruit of all descriptions has been abundant, that much of it has been small, and that there is a general complaint of lack of flavour, probably from the want of sufficient moisture to develop to the full those subtle chemical changes on which flavour depends. Fruit trees, as a rule, are reported to be in a clean and healthy condition,—a favourable augury for the next year's crop. Insect pests do not seem to have been so troublesome as might have been expected. As regards particular kinds of fruit, the tenor of these reports runs thus:—Apricots generally plentiful and good; Apples and Pears abundant but small; Cherries very plentiful and of good quality; Plums much above the average; Peaches and Nectarines numerous but small; Strawberries not so satisfactory as most other crops, the flowers having, in many cases, withered from the drought. Small fruits have been produced in plenty, and of good quality. Nuts of all kinds, Walnuts especially, plentiful.

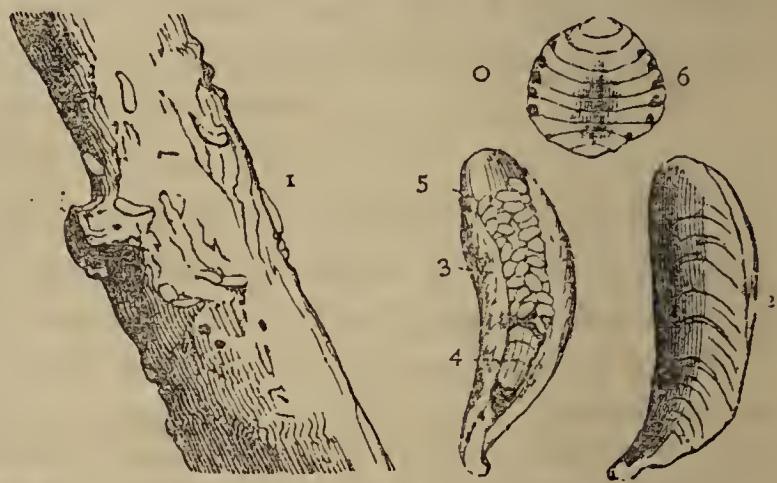
— A VARIETY of *Damson*, called *Crittenden's Prolific*, raised many years ago by Mr. J. Crittenden, of East Farleigh, is said to possess extraordinary bearing qualities as compared with the sorts usually grown, so much so, that of late years many growers have done away with the Prune, Shropshire, and other Damsons, and introduced Crittenden's, which is so popular in the district that every year a stock of it is raised from suckers, which can be had in any number. Its free-bearing character and its qualities as a fruit are well attested; when the fruit begins to swell, the branches have in many cases to be propped up, to prevent their breaking. Tedious as this work may appear, we may be assured that it pays, otherwise it would not be done.

— THE Messrs. Huber et Cie., of Hyères, announce the *Dahlia arborea* as a distinct and unpublished species, having many points of advantage over *D. imperialis*. One of these is its dwarfer habit. It grows some 6 ft. or 7 ft. in height, forms a branched shrub, is clothed with large leaves, and produces an innumerable quantity of pretty mauve-coloured flower-heads, which latter are produced very late, their development, so it is said, not being arrested by a temperature below the freezing-point. The flowers are compared with those of a gigantic Anemone.

— ACCORDING to some recent observations of the Rev. M. J. Berkeley, in the *Gardeners' Chronicle*, on the *Pustules on Pear Leaves*, the cause of which has hitherto been a mystery, these bodies are found to contain three or four minute acari, about one-hundredth of an inch in length. The whole body has dense transverse striae, consisting of granules. The anal extremity is slightly contracted with two bristles, and there are four feet in front, each consisting of four joints, of which the basal one is swollen, the

second oblong, the two terminal ones being about half its length, the latter furnished with a hooked appendage. They appear to be very inactive, and possibly are only the larva state of some more perfect acarus, though scarcely of one which occurs sparingly on Pear leavos, and which resembles closely the "rod spider." The insect is closely allied to the Currant-bud acarus, figured at p. 259 (1869), but it is twice as long, at least when extended. The point which has to be determined by entomologists is, whether the four-footed acari are merely a condition of the eight-legged Tetranchi, though Duges says expressly "larvæ hexapodæ, adulto simillimæ;" or whether, as is more probable, they constitute with some other parasitic species, a distinct tribe of these curious though minute insects.

— *The Apple-bark Mussel Scale, Coccus conchiformis*, referred also to *Chermes* and *Aspidiotus*, is very injurious to apple and pear trees, sometimes occurring in such immense numbers as to cover the bark from root to twig. The male insect does not appear to be known, those which are so abundantly met with being the females. The eggs stored up under the dried carapaces of these, hatch out about May, and then spread over the bark. The accompanying figures represent the insect in different stages and positions; fig. 3 showing the eggs, and fig. 6 a detached coccus. It has lately been recommended to boil leaf tobacco to a pulp in strong lye, and to mix this with soft-soap, and with this to paint over the affected trees, just after the hatching and dispersion of the young brood have taken place. In America this is said to have been found a very effectual remedy.



— *The Laws Regulating the Production of Sexes in Plants* have been recently discussed in a valuable paper read before the American Association for the Advancement of Science by Mr. Thomas Meehan, whose conclusion is, that female flowers are produced only in the best conditions of vegetative vigour, while with a weakened vitality comes an increased tendency to bear male flowers.

Obituary.

— **M**R. JOHN GOULD VEITCH, F.L.S., was born at Exeter in April, 1839, and died at Coombe Wood, Surrey, on August 13th, in his 32nd year. Mr. John Veitch, although taken from amongst us at an early age, will long be remembered, no less for his zeal and enterprise than for his generous and manly bearing, and for the many choice introductions which were the fruit of his travels. In April, 1860, he started on a voyage to Japan and China, and thence to the Philippine Islands; the *Primula cortusoides amœna* figured at p. 193 being one of the fruits of this journey, and many fine conifers and other plants being also obtained. Returning in 1862, he again started in 1864 for Australia and the South Sea Islands, and after an absence of about a year and a half returned, bringing with him some of the most beautiful plants of modern introduction; witness the numerous richly-coloured forms of *Croton* and *Dracaena* which are only now becoming known, together with many other valuable and popular plants. From Cape York he obtained a new palm, which has since been dedicated to his honour under the name of *Veitchia Johannis*. For some three years he had been suffering from an affection of the lungs, under which he at length sank. He was buried beside his father in the Brompton Cemetery. Mr. John G. Veitch was one of the most gifted and promising of our younger commercial horticulturists, and his memory will be cherished by those who had the pleasure to know him intimately as that of a single-hearted, earnest, and sincere friend.

— **M**R. JOHN A. WATSON died at the Villa Lammermoor, Geneva, the property of Sir R. Peel, Bart., on August 9th, in the prime of life, and after an illness of only four days. He was a well-known and talented gardener, and a frequent contributor to the English horticultural press.



J. Macfarlane Del et Zinc

Wellerup S. Eaton Garden

Leptosiphon roseus

LEPTOSIPHON ROSEUS.

WITH AN ILLUSTRATION.

If an exception be made in favour of the admirable *Phlox Drummondii*, none of the annual Phloxworts are more popular, or so well deserve popularity, as the plants included in the genus *Leptosiphon*. Of dwarf and compact habit, yielding profusely their star-like blossoms of various shades, and of the easiest cultivation in almost any soil, it can scarcely be a matter of surprise that they have from their earliest introduction taken place in the first rank. For twenty years the genus was represented in our gardens only by the well-known *L. androsaceus* and *L. densiflorus*, with their white varieties. To these were at length added the charming *L. luteus* and its variety *aureus*, both introduced by Messrs. Veitch of Chelsea; and another, though it may be hoped not a final addition, may now be chronicled in the LEPTOSIPHON ROSEUS, a most charming plant, closely related in habit to the two last named, which it equals, if not exceeds, in beauty and in usefulness.

The accompanying illustration will render superfluous any detailed description of this elegant and attractive little annual. It differs from *L. aureus* almost solely in its colour, which is a most pleasing tender rose, a shade by no means easy to represent adequately on paper. Like that of its congener, its habit is very dwarf, rarely exceeding three or four inches, with similarly palmate foliage, the flowers being produced in clusters terminating the stems and branches. The elongated corolla-tube, so characteristic of the genus, is fully three times longer than the limb, which is about three-fourths of an inch in diameter. In most of the specimens the rose-colour is uniform, but in some there is an approach to a stripe, or flake, which, however, in no degree detracts from the appearance of the plant. Well grown, strong plants will yield their flowers for several weeks in succession. To obtain specimens, however, that will give the maximum number of flowers, it is essential with this, as with the other species, indeed with all other annuals, to sow thinly, or to transplant the seedlings while young to such a distance from each other as will afford full space for development. When the same care and attention that are bestowed on bedding plants are given to the hardy annuals, then, and then only, will their capabilities be discerned.

All the *Leptosiphons* are natives of California, whence the present plant was introduced by the writer, and exhibited during the past summer at the gardens of the Royal Horticultural Society, and also at the Royal Botanic Society's meeting, on both occasions receiving the award of a First-Class Certificate. It is but right to add, in conclusion, that by Dr. Asa Gray, the eminent American botanist, the *Leptosiphon roseus* as well as *L. luteus* and *L. aureus* are regarded as being varieties of *Leptosiphon parviflorus*. The genus itself is, by some of the leading botanists of the day, considered as merely forming a section of *Gilia*.—W. THOMPSON, Ipswich.

THE COLOURING-MATTER OF PLANTS.

N all parts of plants which have a green colour, the cells of which the tissue is composed (and which form the elementary organs of vegetable structure) contain certain globular or spheroidal corpuscles, in which the green colouring-matter resides. These are called chlorophyll corpuscles, and they appear in greater numbers, and of a darker green colour, in proportion to the intensity of solar light to which the tissue may be exposed. These corpuscles, which are soft bodies, consist of a protoplasmic colourless substance, mixed with colouring-matter, which is never found separate in nature. According to Fremy, the green colour of chlorophyll is due to an admixture of two substances, one yellow, called *phyllanthine*, the other blue, and called *phyllcyanine*, though other authorities believe the blue substance to be only a modification of the yellow, brought about by the agency of acids. Our chemical knowledge of chlorophyll is at present incomplete, but it may be expected that spectrum analysis will ultimately reveal much of what is now obscure.

The development of chlorophyll corpuscles is believed to take place thus:— In the young cell the protoplasm is colourless, and disposed in a thick layer around the inner wall of the cell. Subsequently there appears, first, a yellow colouring-matter, and then the inner portion of the protoplasm splits up into polygonal portions, each of which becomes a grain of chlorophyll.

The destruction or decay of chlorophyll shows itself first in a change of colour from green to yellow or orange, or in the case of the spores of algæ, to red. This red colour is assumed at the time when the spores come to rest, and when active vegetation recommences the green colour is restored. In the case of leaves, at the fall, the grains of chlorophyll diminish, then disappear, and give place to highly refractory granules of an orange colour, which are the remnants of the disorganized chlorophyll, and to which the colour of leaves in autumn is due. While these processes are going on, the starch and the protoplasm are dissolved and stored away in the permanent tissues. In plants kept in the dark, Gris noticed that the chlorophyll granules slowly and gradually become smaller and lose their starch and colour, till at length nothing but minute amorphous granules remain. Some plants, as *Selaginellas*, Ferns, &c., bear the deprivation of light much better than others, but in all quickly-growing plants, two or three days' obscurity suffices to disorganize the chlorophyll.

The production of this green matter of plants is a result of the liberation of oxygen. If plants are placed under such circumstances that they cannot decompose carbonic acid, and exhale oxygen, as by excluding light from them, they never acquire proper development; no green colour appears—they are etiolated; little or no woody matter is formed in the walls of the cells, and the whole energy is consumed in pushing out weak, watery shoots.

The bright colours of flowers are produced by substances usually dissolved

in the watery cell-sap, though sometimes solid corpuscles or utricular structures are found in coloured cell-sap. In young tissues of flowers the colouring-matter may be observed to form gradually in the vacuoles of the protoplasm, and as the cells expand to increase in quantity, until the separate portions coalesce and fill the whole cavity of the cell.

The colouring-matters of flowers admit of being grouped in two series, the cyanic series and the xanthic series, with green as an intermediate colour. Thus, starting with greenish-blue, the cyanic series passes through blue, blue-violet, violet, violet-red to red. The xanthic series, on the other hand, passes from green to greenish-yellow, yellow, orange-yellow, orange, orange-red to red. The cyanic colours are usually in solution, the xanthic usually solid. It rarely happens that the colours of the two series meet in the same flower. The various tints of colour are produced either by means of the interposition of colourless cells between those containing coloured juices, or by the superposition of cells with different colouring-matter one over the other. Thus, an orange tint would arise from the superposition of yellow cells over red, and so forth. White is produced either by a very dilute coloured solution, or by the presence of air in comparatively large quantities in the tissues. The velvety appearance of the petals of many flowers is due to the fact that the epidermal cells are raised in the form of small conical elevations, like the pile of velvet, and the play of light thereon gives rise to the appearance referred to.

We glean these particulars respecting a most interesting subject, of some importance to gardeners, from the recently issued edition of Professor Henfrey's *Elementary Course of Botany*,* which has passed under the revision of Dr. Masters, than whom no one more competent for the task could be found. Without being swollen out to an unwieldy size by lengthy dissertations on unimportant topics, we have in this new edition of Henfrey a complete text-book of Botany in its various departments, brought up to the level of our present knowledge.—M.

RIVERS' SEEDLING PEACHES AND NECTARINES.

 HAVE grown and fruited in pots this summer some of Mr. Rivers' new seedling Peaches and Nectarines, and I have found the following varieties to be great acquisitions as regards earliness and flavour. They were grown principally on a glass-covered wall, but a few of the varieties were fruited on a south wall without protection of any kind.

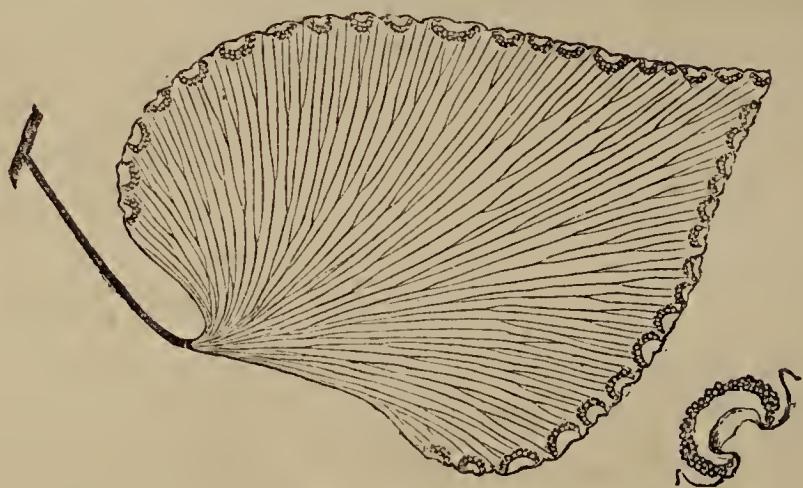
Amongst PEACHES the *Early Beatrice* was the earliest in ripening, being quite ripe by the middle of July; it was juicy in texture, and the flavour was good. *Early Louise* ripened about the end of July, but was not so juicy nor so good in flavour as Early Beatrice. *Early Rivers* ripened with me about the same time as the Early Louise, and was very juicy, with a rich, racy flavour. *Dagmar*

* *An Elementary Course of Botany; Structural, Physiological, and Systematic*. By Professor Arthur Henfrey. Illustrated by upwards of 500 Woodcuts. Second Edition, revised, and in part rewritten, by Maxwell T. Masters, M.D. London: Van Voorst. Pp. 708.

proved to be a large and finely-coloured peach, and ripened in the second week in August. *Dr. Hogg*, another large and also a finely-flavoured peach, ripened about the same time as the *Dagmar*. *Early Silver*, a very large and highly-flavoured peach, ripened in the third week in August. *Alexandra Noblesse* has quite the pale colour of the old *Noblesse*, as well as its juicy and rich flavour; it ripens in the end of August. *Lord Palmerston* is a very large, pale peach, and is at this date (September 15) ripe, but the flavour is not first-rate. *Princess of Wales* is another very large peach, pale in colour, with rosy cheeks next the sun, but it will be the end of September before it is ripe.

The order of ripening of Mr. Rivers' seedling NECTARINES was as follows:—*Lord Napier*, a pale coloured Nectarine of good flavour, and ripening in the beginning of August. *Rivers' New White* is better flavoured than the Old White, and ripens in the middle of August. *Rivers' Orange*, a seedling from the Pitmaston Orange, is an excellent high-flavoured variety, and ripens in the end of August. *Stanwick Elrige* has a smack of the Stanwick flavour in it, and ripens in the end of August. *Victoria*, the latest of Mr. Rivers' seedling Nectarines, is very rich and juicy when grown in pots, and ripens from the end of August till the middle of September.

Dr. Hogg Peach has ripened with me on a south wall, and was in season in the end of August; it is a variety of excellent flavour. The *Pine-Apple Nectarine* has likewise ripened on the same wall, and is an excellent new variety, the flesh yellow, like Hunt's Tawny, very rich in flavour, and the colour of the fruit nearly black next the sun.—WILLIAM TILLERY, Welbeck.



ADIANTUM PERUVIANUM.

If the known species of Maidenhair Fern, it is, perhaps, not too much to say of this, that it is the noblest of them all. It is a fern which at once arrests attention, not less for its size than for the elegance of its large, compound drooping fronds, which is well shown in the accompanying illustration copied from the *Gardeners' Chronicle*. It is a Peruvian plant, and was described many years since by Dr. Klotzsch, who mentions both its *fronde ramosa* and its *pinnulis magnis*. Latterly we have met with it in the collection



of Messrs. Veitch and Sons, of Chelsea, who have been fortunate enough to procure the only plants which have, we believe, been introduced.

The plant is furnished with a stoutish decumbent caudex, from which arise to the height of 12 in. or 15 in., the stout, black, erect, polished stipites, supporting the ample fronds, which are between 2 ft. and 3 ft. long, the nearly simple elongated branches, as well as the apical portion of the frond, spreading out and hanging as gracefully pendent as the boughs of a Weeping Willow. On the larger fronds four or five of these pinnæ, or branches, are produced, the lower ones being fully a foot in length, and again branched near the base. The pinnules are numerous, of a stoutish texture, smooth, but of an opaque green colour, and of large size, attached by longish slender petioles; they have the base more or less wedge-shaped, and the apex pointed, rarely acuminate, the side angles being rounded, so that the pinnules become unequally ovate or somewhat trapeziform according to the degree of obliquity in the two sides. The pinnules measure in ordinary well-grown mature fronds about 2 in. long by 1½ in. broad, some of those on the less divided fronds being fully 3 in. long and 2 in. broad. The sori are large, produced along the whole of the two anterior margins of the pinnule, varying in length, but generally shortish and somewhat rounded. The veins are flabellately-forked, without trace of midrib.

This noble fern is, of course, a stove plant, not, however, requiring a very high temperature. It appears to be of free and vigorous growth, so that it will be invaluable both as a decorative and an exhibition plant. The bold character of the pinnules, and the remarkable pendent habit of the entire plant, must certainly claim for it a place in the first rank of ornamental Ferns.—T. M.

AQUATICS.—CHAPTER IV.

 NEAT-GROWING native perennial is the Water Violet, or Featherfoil, *Hottonia palustris*. Its root-stock is generally submerged. The leaves are alternate, deeply cut, the lobes very narrow, very much resembling those of *Boronia Drummondii*, but of a more lively green. The flower-stem rises above the surface about 9 in., and the flowers are set in whorls, one above the other, generally five or six in each whorl; they are of a delicate light purple, five-petaled, and not quite an inch across. When seen from a distance, the plant much resembles some of the darker-coloured varieties of the *Cardamine pratensis*, and has a particularly chaste appearance. As it occupies but a small space, it may be introduced into gardens of very limited dimensions, and is very suitable for a small pond or tank; but if placed in the former, it should be near the margin. The flowering season is July and August. It appears to be the only European species.

The Flowering Rush, *Butomus umbellatus*, is also a native plant, found in ditches and water-courses in various parts of the country, though not over plentiful, except in some few localities. From its creeping rootstock it sends up a number

of triangular leaves, broad and sheathing at the base, gradually tapering upwards to the height of 18 in., and terminating in a point. The name "Rush" is not happily applied to it, as it is in reality more like the *Blandfordia nobilis*, or some allied plant. The flower-stem rises to the height of from 2 ft. to 3 ft., sometimes higher when very strong, and bears at its summit an umbel of from two to three dozen flowers of a reddish hue, each flower consisting of three large and three small petals, the individual flowers measuring nearly an inch over. When in flower, it is very ornamental. The margins of ponds, or lakes, or small tanks are the places most suitable for it; but it will flower profusely in a pan 18 in. over, if planted in good stiff loam or clay. It is well worth cultivating, and ought to be much more frequently met with than it is. It flowers in July and August.

The white-flowered *B. latifolius* of Nepal appears now to be quite lost. It produces a flower-stem about 1 ft. in height, and would probably bear our winters. Those who have correspondents in Northern India would do well to try to re-introduce this plant, and as the *B. umbellatus* seeds profusely, possibly the *B. latifolius* may do the same, and if so, a few seeds could be forwarded by post.

The Buckbean, *Menyanthes trifoliata*, has strong, creeping, fleshy stems, which emit roots in abundance, and are rather thickly set with leaves, especially towards their points; these leaves are trifoliate in form, on long footstalks, each leaflet from 2 in. to 3 in. long, by 1 in. broad. The flower-stalk rises a few inches out of the water, producing about eight or ten blossoms on each, of a rosy hue, and very pretty, and also beautifully fringed. It is a very useful, hardy plant for the margins of ponds, &c., as it soon makes a fine mass, and is no trouble to grow; there appears to be no other species.

But the dragon-flies seem all to have gone to rest, and the reed sparrow has just set up a sort of spasmodic twitter, reminding one that it is time to leave the margin of the grassy pool and hie homewards.—W. BUCKLEY, *Tooting*.

THE GARDEN MENTOR.

OCTOBER is sometimes a rough and boisterous month, though occasionally a fine one, especially during the early part of it. The short days and cold nights tell upon the vital powers of plants. The woods now look rich and beautiful in their autumn dress, and doubly so when seen under the influence of a bright October sun.

KITCHEN GARDEN.—The season now drawing to a close has been a very unfavourable one for the growth of vegetables, owing to the lengthened drought. Daily waterings have been necessary to keep plants growing. *Winter Spinach* should now be finally thinned, and the soil between the rows should be kept well stirred, to encourage it to grow. A portion of the *Endive* and *Lettuce* crop should be tied up weekly for succession; and a good breadth of *Lettuce* should be planted at the beginning of the month on a warm border, to stand the winter. *Celery* should be earthed up, as it becomes necessary, in dry weather. *Cauli-*

flowers sown in August should now be pricked out into frames or under hand-glasses, at a distance of four or five inches apart. The whole of the *Potato* crop should be lifted and housed in dry weather. *Carrots, Parsnips, Beet, Salsify*, and *Scorzonera* should be taken up as soon as the tops indicate maturation, and dressed, and stored away when dry. When the *Asparagus* stems are decayed, they should be cut down, and the beds winter-dressed. *Cauliflowers, Spinach, Peas, Beans, Scarlet Runners*, and other crops which have done bearing should be cleared away. The ground should have a good dressing of manure, and then be either dug deeply, trenched, or thrown up into ridges. The surface soil between crops should be stirred with a hoe on fine days. Weeds will not now be troublesome.

Sow : Mustard and Cress weekly, for a regular supply.

FORCING-HOUSES.—*Pines* : These should now undergo a thorough re-arrangement, before the cold weather sets in, and if the beds want renewing wholly or in part, it should be done before the plants are fresh plunged. All the plants in fruit should be placed in a compartment by themselves, so that a suitable temperature may be kept up during the autumn and winter months. The plants for next season's crop of fruit will now have done growing, and these will also do best in a separate compartment, as they require a comparatively dry atmosphere, and plenty of air and light. The succession plants of all sizes will do well together ; the larger plants should be plunged in the back rows, and the smaller ones in the front ones, and if any of them require shifting, it should be done before they are re-plunged. Fire-heat will now become necessary to keep up the temperature ; from 60° to 65° at night will be sufficient for the succession plants, but the night temperature for the fruiting plants should not fall much below 70° . The fruiting plants should be liberally supplied with water when they require it ; the succession plants will do with much less at this season. *Vines* : Keep all the houses containing ripe grapes as dry, cool, and airy as possible ; remove all berries the moment they show signs of mouldiness or decay. The Vines in the early house, to be started next month, should be pruned at once, if not already done. *Peaches* : The trees in the early house should be pruned, but if disbudding and the thinning of the shoots have been properly attended to, little in the way of pruning will now be necessary. Remove the ties of last season, and thoroughly cleanse the trees from everything likely to harbour the eggs or larvae of insects ; then give them a dressing of the following mixture :—a little soft-soap, sulphur, clay, and tobacco-water, reduced to about the consistency of paint ; this should be applied with a brush. When dry, the shoots should all be neatly tied in to the trellis. If any worn-out trees require to be replaced with younger ones, this is the proper season to do it. The best trees for the purpose are those that have been trained for five or six years. These come into bearing at once, and the variety is known, which cannot always be the case with younger plants. The plant should be carefully lifted, so as to injure the fibres as little as possible, and should not be planted too deeply.

Figs: Give the inside borders a good watering occasionally, to prevent them getting too dry; keep the house dry and cool, and give abundance of air, that the plants may have a rest. *Cucumbers* and *Melons*: These do little good on dung-beds after this. The late crops should always be grown in pits heated with hot-water pipes, and then with a little attention and care Melons may be grown to the end of November, and Cucumbers all through the winter; the principal point with Cucumbers is to have fine, healthy, robust young plants to commence the autumn with; these, with care, and not allowing them to carry too many fruit at a time, will bear a succession through the winter. The night temperature should not fall much below 70°, and a temperature of 80° should be kept up during the day.

HARDY FRUIT GARDEN.—The end of this month is the best time in the year for planting fruit trees when the weather is suitable, therefore those who have any planting to do should make every preparation to take advantage of the first favourable opportunity. Take advantage of fine days to gather *Pears* and *Apples* as they become fit; I cannot too often urge the necessity of careful handling of the fruit, so as not to bruise or injure it, otherwise it will not keep long. *Quinces*, *Medlars*, *Walnuts*, and other *Nuts* should be gathered when fit.

FLOWER GARDEN.—*Plant-Houses*: All tender plants should now be under the protection of glass. *Soft-wooded Plants* should have plenty of air in fine weather, but at this season they should be carefully watered, and the stages and paths should be kept dry, for damp in this and the following months is very injurious in plant-houses. *Hard-wooded Plants* must be well attended to; the more tender kinds must not be exposed to cutting winds. The more hardy kinds should have plenty of air, but be careful to guard against cold draughts, which would injure the foliage after coming from the open air. Pay every attention to the young stock; neither let the soil get over dry nor over wet—both are injurious, but rather err in letting them get dry than wet, as water is more easily given than extracted.

Pits and Frames.—Plants in pits and frames must now be watered sparingly. Air should be freely given in fine weather, also some in wet weather, by tilting the lights behind. Shift the larger *Cinerarias* as they require it, and give them plenty of room. Pot off late seedlings. Shift and pot off *Calceolarias* as they require it. Rooted cuttings of *Pelargoniums* of all kinds may be potted off, and after they are potted, they will do best with a little bottom-heat to assist them in making fresh roots. *Bulbs* of all kinds should be potted and placed in frames until wanted for forcing.

Out-Doors.—Spare no pains to keep up the appearance of the garden, a clean, well-kept garden will please at all seasons. Towards the end of the month all plants intended to be kept over the winter should be lifted, potted, and put into a little heat to assist them to make fresh roots. As soon as the beauty of the plants is gone, they should all be cleared away; the beds should be

manured, dug deeply, and planted with bulbs and spring-flowering plants. When this is done, any contemplated alterations may be proceeded with at once. This is the best season for planting all the hardier trees and shrubs. Leaves will now begin to fall fast, and will require daily sweeping up. Mow lawns in dry weather, and sweep and roll walks.—M. SAUL, *Stourton.*

VARIATION IN PLANTS.

PT may perhaps, at first sight, seem to be contrary to the divine command that the earth should bring forth “the herb yielding seed after his kind, and fruit-tree yielding fruit after his kind,” for the species of plants to have since branched off into infinite varieties for the use of man. But the decree seems to have had no such limits as those set by the Genera and Species of science. The working of Nature’s laws, indeed, is in perfect harmony with the words of Holy Writ. The deviations observed in the various species of a genus are effected by the fecundation of the seed through the influx of alien pollen, and thus the way is opened for all future varieties.

Some persons consider that cultivated plants are only wild ones reclaimed or altered by higher culture. Now, though this conclusion may be the easiest way of settling the question, there are fatal obstacles in the way of its acceptance, for no sort of culture will turn the *Pyrus Malus* or *Crab* into an apple tree, nor the *Rosa rubiginosa* or Sweet-brier into a double rose. The first start or change is effected in the seed in the way above mentioned. In support of this view, I would add that *Rosa sinica* is a very distinct species from *Rosa sempervirens*, and yet it is said that the whole of the new hybrid roses originated by the mixture of their pollen. This shows that there are connecting links of affinity in the families of plants, though their original homes may be thousands of miles apart. Thus, though the apple is considered to be the offspring of the wild crab, there must have been a union of this and some other *Pyrus* at a very early period,—perhaps in Asia, for we read of it there; the prophet Joel mentions the apple tree as being “withered with other fruit trees;” while Solomon’s simile, “the smell of thy nose is like apples,” indicates that the fruit commonly known by us as the apple is meant. There seem to be few, often no varieties, where there is but one species in a genus, for in such cases there can be no mixture of fruitful pollen to produce hybrids. The *Viscum album* or Mistletoe is one case in point. The extended existence of this plant depends solely on seed, and the young germs, indeed, show but little signs of life until the second or third season after the seed has been deposited on the bark of the foster-tree.

I now advert to the case of plants being separated for years from their original habitats, yet as soon as one of the same family is introduced, a fruitful union is readily effected. The *Aucuba japonica* affords a good example of this; it has been in this country upwards of eighty years, and its blossoms were unfertile until lately, when the male was introduced from Japan, and now the blotched-

leaved female may be seen full of red berries. There may be those who do not credit the opinion that the *Crambe maritima*, or *Seakale* is the head of the Cabbage tribe, but who yet readily believe that wild plants can be reclaimed or changed by higher culture, contrary to what I have now advanced. Therefore, I further observe that if a *Prunus Cerasus* were planted out amongst trees of *Prunus Avium*, it would not degenerate or become changed into the latter, for the virtue of the rind of the bark forbids it. Indeed, the bark of plants may be said to be the truthful keeper of the peculiar virtues they inherit from seed; and upon this fact depends the rearing of plants by cuttings, buds, and grafts true to their kinds; while those raised from seed often fail to keep true.—J. WIGHTON, *Cossey Park.*

THE VENTILATION OF HOTHOUSES.

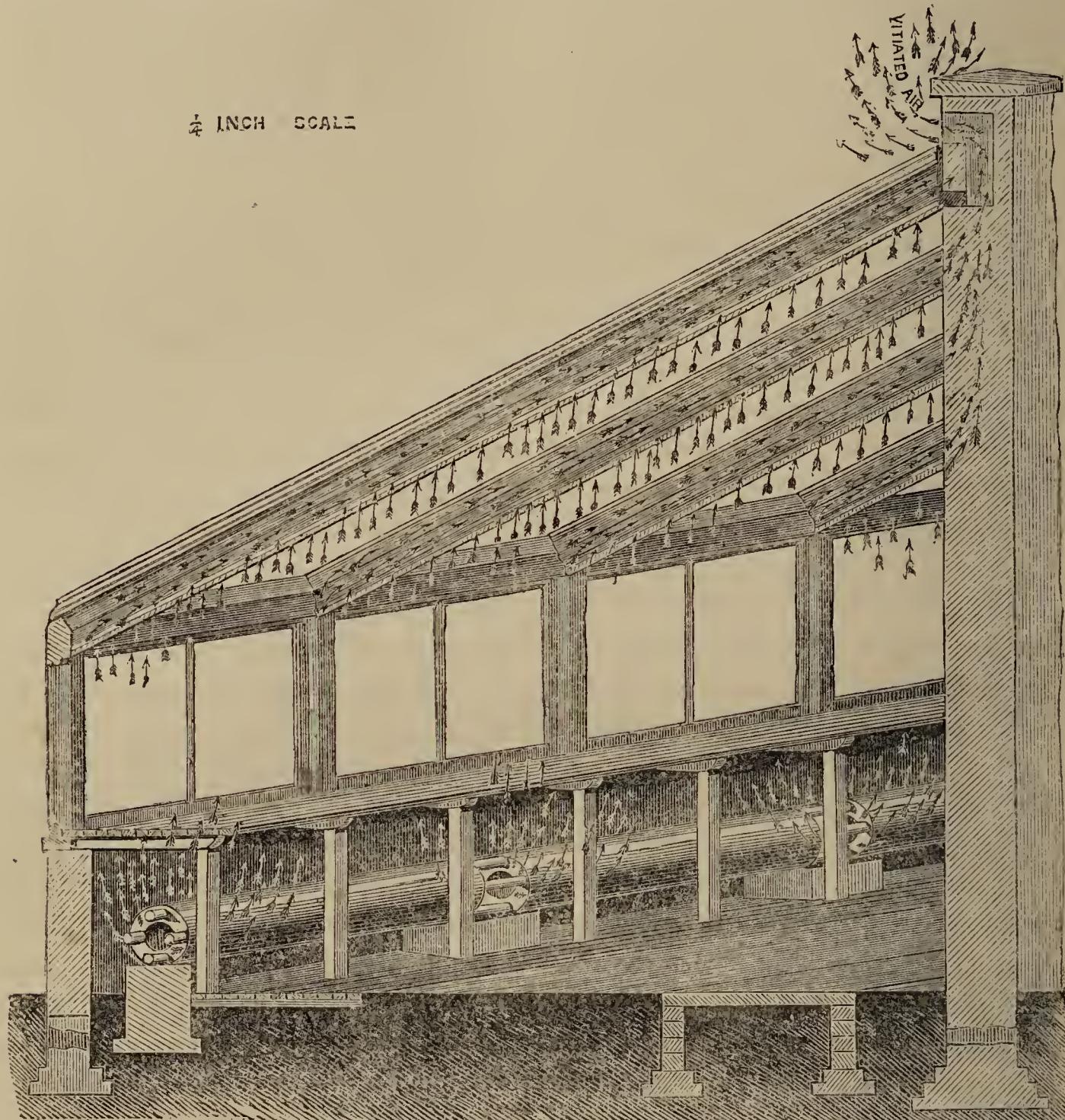
WHAT a stagnant atmosphere in hothouses is inimical to the well-being of plants, there can be no question. Abundant testimony might be adduced to prove that in ill-ventilated hothouses not only are etiolated growth and thin sickly foliage the rule, but also that red spider and other insects are more difficult to keep under than when abundant ventilation is at the gardener's command—the insects, a consequence or concomitant of the want of vigour in the plants, and the want of vigour and stamina in the plants a consequence of lack of the life-giving properties contained in the free air. The cry raised some years ago by an eminent horticulturist on behalf of plants confined in forcing-houses, "*Give me air or I shall die!*" was no vain appeal, and, doubtless, has had a beneficial effect, by directing the attention of builders and gardeners to the importance of the subject, and thus securing the provision of more openings for letting in, or, more correctly, letting through the air.

But it is well known to cultivators of tropical plants and of forced fruits, that something more is wanted than the means of allowing a blast to blow through the forcing-house, as plants under tropical treatment can no more bear the direct action of cutting easterly or other cold winds which the ordinary ventilators admit, than an Asiatic can endure with impunity the chill air of a northern climate. Ingenuity has been busy in devising the means for letting-in and letting-out sufficient volumes of air to and from our hothouses; and many of the plans in use are entitled to little more praise than is conveyed in the words "they are ingenious." At length, however, a plan has been brought before the gardening world worthy of far higher commendation, and which if it does not supply all that the cultivator can wish for, goes a long way towards doing so. We allude to Mr. Ormson's new system of warming and airing hothouses, a model of which was exhibited at Oxford, at the Royal Horticultural Society's show, and which the accompanying engraving will the better enable the reader to understand.

By means of this novel system, a continuous supply of air, deprived of its chilling properties, may at all times be uninterruptedly supplied to a forcing-house,

even during the coldest night or day of the whole year, without the possibility of injury to the most delicate plant. It will be seen from the figure that the ordinary 4-in. hot-water pipes have been dispensed with as the heating medium, and hollow hot-water cylinders presenting a large heating surface (as much as four or six of the ordinary 4-in. pipes) substituted. These cylinders present the ordinary external surface for radiation of heat, and, in addition, an internal surface, forming a chamber by

$\frac{1}{4}$ INCH SCALE



means of which the external air after being brought in through valves in the front wall, is allowed to escape into the house at openings between the cylinders, as shown by the arrows. The air thus becomes warmed before coming in contact with the plants, and by the force of gravity is diffused through the house, escaping through hollow rafters by means of nicely adjusted valves into a chamber in the back wall, and from thence into the open air, through gratings provided for that purpose. There is a valve or ventilator at the top of every rafter, and a valve is fitted to each

of the cylinders. In order to properly moisten the warm air on escaping from the cylinders, zinc or iron pans are provided to fit the top of the cylinders, which may be placed over each opening, or elsewhere, at the option of the cultivator. By such an arrangement it is evident that no stagnant or vitiated air can remain in the building, but, on the contrary, an atmosphere in motion, constantly replenished with a stream of fresh air from without, will be flowing through it. It will be sufficiently evident that although the engraving shows a lean-to house, the same principle is equally applicable to other forms of structure ; and we should also state that sashes and lights are hung in the usual way, so that in summer additional air may be given to any extent required.

We may fairly congratulate Mr. Ormson on the successful working-out of a good practical idea, and that without assuming that he has yet reached the *ultima thule* of the science of ventilation. Further enlightenment may not improbably follow in the course of practically working-out the system as now presented to us, but in the meantime a good plan for the free circulation of fresh air in our hothouses in the depth of winter has been secured, without the possibility of risk to the plants from contact with cold air. The perforated rafters may probably add to the efficiency of the arrangements by drawing the outgoing current from every part of the house ; whether their cost would be compensated by their advantages is a question which practical trials will soon settle.—M.

THE BURGHLEY PARK CHERRY.

 HIS Cherry is a seedling raised at Burghley Park, Stamford, the seat of the Marquis of Exeter, more than thirty years ago, but it has never until now been brought very prominently into notice. It belongs to the Red Duke class. The fruit is very large, fully an inch in diameter, slightly elongated or oval in shape, and sometimes flattened on the sides. The skin is very thin, transparent, showing the flesh through when fully ripe ; when commencing to ripen it has the appearance of a Bigarreau, but gradually changes to a brilliant dark red the longer it hangs. The stalk is long and rather slender. The flesh is of a dull yellowish-red hue, veined or netted, very juicy and melting, with a sweet acid flavour, both pleasant and refreshing. The variety is, however, one of rare excellence, coming into use at midseason.

The tree has had the reputation of being a shy bearer, the crop being generally very scanty, but so extremely fine, that Mr. Gilbert, the gardener at Burghley, was instructed to use his best powers to obtain a crop, and he has succeeded by a stroke of common sense—by leaving a supply of the young wood at winter pruning, instead of cutting it all off as formerly—in securing a most abundant crop, the tree having been this season literally laden with fruit.

The Burghley Park Cherry was deservedly awarded a First-Class Certificate by the Fruit Committee at the Royal Horticultural Society's meeting at Oxford. It is undoubtedly a seedling and a first-class fruit, and ought to have

been brought forward many years ago. The question now arises as to its distinctness from other varieties since introduced to cultivation. It has been suggested that it may prove to be the same as *Reine Hortense*, a well-known and much appreciated variety, which has time after time been raised from seed, and sent out as a new variety, and which enjoys no fewer than nineteen synonyms, including *Merveille de Hollande*, *Belle Suprême*, &c.—M.

SHELTER FOR GARDENS.

SHelter is sought, with more or less intentness, by the birds of the air and the beasts of the field, all of whom love to retire to some covert or retreat as a refuge from the stormy wind and tempest. This being so, what shall be said of the neglect of shelter in our gardens, where we cultivate the plants of every clime,—the choicest fruits, flowers, and vegetables, all carefully improved through man's agency, either by means of hybridization or of high cultivation, and all consequently more highly bred and more delicate than the wild animals and birds. Do not such subjects as these also require shelter? Assuredly they do; and I have seen this so frequently illustrated, that I would invite attention to the subject. Fruits under the influence of shelter will grow twice as large as they will do when exposed, and they are also much improved in flavour. This result is obtainable simply by affording them shelter,—and by this word I do not mean a glass structure or a garden-wall, but trees which will grow 40, 60, yea 100 ft. high, if you wish, and will protect the garden from the stormy blast, and “sift the air,” as it were, before it reaches their more delicate brethren. By means of shelter such as this, placed at a proper distance, the Pear will swell to its full size, the Peach will become “fat and lusty,” and full of saccharine juice, and the Apple will remain on the tree until it is properly matured, and will consequently keep much longer. Flowers, grateful for the protection, will open more kindly, even in very early spring; while vegetables may be brought more forward, and retained to a later period by the same influence, and they will also be much more juicy and “comely in their kind.”

It remains to inquire what are the best trees to be planted in order to effect these benefits. In my opinion, nothing is so good for this purpose as the Pine tribe, and among these, perhaps *Pinus austriaca* and *P. Laricio* are the best. There may, however, be persons who would think their sombre appearance a blot in the landscape. To relieve this, and lighten up the picture, a mixture of Elm, Beech, Sycamore, or Lime might be introduced. I have a great liking for the latter tree, which is beautiful in growth, fragrant in blossom, and always pleasing. In some cases, a good many of the Wild Cherry, or Gean, as it is called in Scotland, may be introduced with good effect, on account of its abundant white flowers in spring; it is also useful as affording food to birds, and in autumn the foliage is second to none for its beauty in the landscape.

I am so satisfied on this subject of shelter, that I believe we may manure and

trench, plant and water, and in every way do our best, but without plenty of shelter, either natural or artificial, we shall be but half repaid for our labour.—
JOSEPH RUST, *Eridge Castle*.

THE PEARS AT TORTWORTH COURT.

FTER a slight interruption, I again resume from p. 185 my annotations on our collection of Pears; and I do so with the sole object of benefiting those whose opportunities for observation in this department may not have been so extensive as mine:—

L'Inconnue.—However meritorious the quality of Glou Morceau, we have here a much superior variety. The flavour is really exquisite, juicy, and sugary, combined with an agreeable acid, and it is very productive, even in adverse seasons. Its usual time of ripening is from the middle of January to the middle of February, and it weighs from 7 oz. to $7\frac{1}{2}$ oz.

Marie Louise.—This is a pear of sterling merit; its quality scarcely ever varies; it is melting, juicy, sugary, and vinous. Upon an average it begins to ripen towards the middle of October, keeps in condition about three weeks, and weighs from 7 oz. to 8 oz. The blossoms are rather tender, and are occasionally destroyed by late frosts.

Monarch (Knight's).—We might with the greatest confidence class this variety as equal in quality with *L'Inconnue* and *Marie Louise*. It begins to ripen during the first week in November, and keeps in good condition till the middle of December; the usual weight is from 6 oz. to 7 oz., but it sometimes considerably exceeds these figures. With us the greater part of the crop drops prematurely. This defect may arise from some disorder in the soil, rather than from any inherent property possessed by this variety.

Nouveau Poiteau.—This is a fine-grained pear, melting and very juicy, but deficient in sugar, and hardly worth growing, as so many other kinds of superior merit are in use at the same time. It decays so rapidly as to require daily attention. The usual time of ripening is from the 20th to the end of October, and it usually weighs from 11 oz. to 12 oz.

Napoléon.—Unless grown against a south-east or west aspect, this variety rarely if ever acquires a second-rate quality. Grown as an open standard with us, it is quite worthless. It begins to ripen about the middle of October, soon begins to decay, and usually weighs from 6 oz. to 7 oz. Its place is well supplied by *Marie Louise*.

Ne Plus Meuris.—This is a very hardy variety, and in the majority of seasons fruits freely as a standard, but unless the weather is warm, there is a deficiency of size and flavour. The sterling qualities of this pear can only be properly developed when it is trained against a south aspect, and it is then unsurpassed, and hardly equalled by any pear cultivated in British gardens. Moreover, there is the property of ripening gradually, so that at no time is there a glut of ripe fruit. The flavour is buttery, melting, very sugary, and luscious; it usually begins to ripen about the end of December, keeps in good condition till the end of February, and weighs from 14 oz. to 15 oz.

Nelis, Winter.—Independent of its high qualities, during the majority of seasons this variety bears freely as a standard, even in exposed situations, and should therefore never be omitted in any collection, however limited. The flavour is all that can be desired, being melting, very juicy, and sugary; it weighs from 6 oz. to 7 oz., and ripens usually about the first week in January.

Passe Colmar.—Unless planted in a sheltered and warm situation, we find that this variety rarely bears freely or ripens its fruit thoroughly. To do this really excellent pear ample justice it should be trained against a wall. The usual weight is from 6 oz. to 7 oz., and it begins to ripen about the middle of November. In catalogues a variety is introduced under the name of *Passe Colmar Dore*, but I have not been able to discover any room to make the distinction.

Prince Albert.—This pear is of recent introduction, and has proved, under a variety of circumstances, to be quite worthless for the dessert. It is somewhat surprising that it should be constantly described in nursery catalogues as a melting, sugary, and richly-flavoured variety.

Seckle.—No pear with which I am acquainted possesses so strong an aromatic flavour. The quality is all that can be desired, juicy, sugary, and melting. In most cases one or two trees will be sufficient, as it soon begins to decay. The time of ripening is somewhat uncertain, as we have had it quite ripe on October 6 and at other times not till the end of the month. It

hardly, if ever, exceeds 6 oz. in weight, but more frequently averages from 4 oz. to 5 oz., which is owing in some measure to its very productive habit.

Sabine d'Hiver.—In form, size, and colour this pear somewhat resembles Easter Beurre, so much so, that an unpractised eye might easily be deceived; still it is quite distinct from that variety, and superior in quality. It can hardly be called melting, yet the flesh is soft, to some extent buttery, and sugary. A really valuable pear during February, and continues in use till nearly the end of March. The tree is a profuse bearer, and the usual weight of the fruit is from 9 oz. to 10 oz.

St. Germain.—This is by no means a productive pear, and does not ripen even in favoured localities when grown as a standard, so that it may with propriety be omitted in extensive collections. The flesh is juicy and melting, frequently gritty, and deficient in sugar. Begins to ripen about November 20, and weighs on an average about 8 oz.

Thompson's.—The qualities of this pear are unsurpassed, if equalled by any, and hence it is indispensable even where only a few kinds are grown. The flesh is melting, exceedingly juicy, and sugary. The tree is a moderate bearer, and somewhat tender. The fruit begins to ripen about October 20, keeps in good condition for two or three weeks, and weighs from 7 oz. to 8 oz.

Triomphe de Jodoigne.—A large pear of no merit whatever; so worthless, that we have discontinued its cultivation.

Van Mons Léon le Clerc.—This is a large pear of excellent quality, weighing about 10 oz. The flesh is melting, juicy, and sugary, of a delicious flavour. As a standard it is productive, but to have the fruit in perfection it ought to be grown against a wall. It begins to ripen during the last week in October, or the first week in November.

Williams's Bon Chrétien.—We cannot dispense with this pear, as it fills up a gap when really good kinds are scarce. As it does not keep in condition above a week or ten days, a couple or three trees will be enough to meet the demand of a large consumption. It should be gathered during the last week in August or the first week in September, but much will depend upon the season; one thing is certain, if allowed to ripen on the tree, the flavour will be insipid, and the flesh spongy. The usual weight is 10 oz.

Zephirin Grégoire.—Between this pear and Passe Colmar there is an intimate connection, but there is this difference, that the present is more productive in a cold situation. The tree is of rather a feeble constitution, and to keep it in good health the fruit must be thinned freely. There are few pears of a more delicious flavour, being exceedingly juicy, vinous, sugary, and highly aromatic. It begins to ripen during the first or second week in November, weighs from 7 oz. to 8 oz., and keeps in condition for nearly a month.

In concluding these annotations, I may remark that I have faithfully described the quality of the several kinds as produced in our soil and situation. The experience of other cultivators situated under different circumstances will, no doubt, in some points differ from mine, nor can we everywhere expect to arrive at uniform results. As to the exact period of maturation, nothing can be definitely stated; all that can be recorded is a mere approximation, as the influence of the season and the temperature of the fruit-room will either advance or retard the ripening process. As none of our trees are subject to disease of any kind, I have not had the opportunity of taking notice of what in many gardens is a source of great annoyance. The habit is free, without being luxuriant.—ALEXANDER CRAMB,
Tortworth Court Gardens.

RHODODENDRON LOBBII.

 VERY distinct *Rhododendron* of the tender class, obtained from Borneo by the Messrs. Veitch and Sons, who have been good enough to favour us with the accompanying illustration. It was collected by Mr. Thomas

Lobb, whose name is so closely associated with many of the fine plants brought forward from the Chelsea and Exeter establishments during the last few years, and it has been named in compliment to him by the Messrs. Veitch.

It forms a moderate-sized shrub, with whorled oblong-elliptic leaves, and terminal trusses of long-tubed flowers, having the tube 3 in. to 4 in. long, curved upwards, and the limb moderately expanded. The colour is a bright glossy



crimson, a colour which gives the plant a brilliant appearance, and from the form and general character of the flowers, it has a most distinct and striking appearance. It is a very free-blooming plant, and from eight to twelve flowers

are produced in a truss. When exhibited at South Kensington in October last, it gained a First-Class Certificate.

The plant is very closely related to the *R. longiflorum* of Lindley, also a Bornean plant, gathered by Mr. Hugh Low, and may possibly prove to be the same. According to Messrs. Veitch's experience, it requires the heat of an intermediate stove. It should be mentioned that the name *R. Lobbianum* had previously been given to a yellow-flowered Penang plant, which has been considered by some as a yellow-flowered variety of *R. Brookeanum*.—M.

THE NEW SHOW PELARGONIUMS OF THE YEAR.

IT would seem that Messrs. Hoyle and Foster are as busy as ever in the work of improving the Pelargonium, and their efforts are well seconded by Mr. Wiggins, of Isleworth. The march of improvement goes on, each succeeding season furnishes its quota of progress, and year by year we sum up the results of the acceptable work of these worthy florists.

The past season has produced some very fine flowers, and the finest of these have each received that high award the Floral Committee of the Royal Horticultural Society is ever willing to give to subjects of undoubted merit. These favoured flowers are as follows:—*Admiration* (Foster), lower petals pink, flushed with carmine, white throat, dark blotch on the top petals, with fiery orange border, and a thin edge of pale pink; a fine and pleasing flower, and good habit. *Charlemagne* (Foster), in the way of Mary Hoyle, but having a much deeper glow of colour; lower petals bright carmine, bold white throat; small dark blotch on the top petals, lit up with a slight border of fiery orange, and a broad margin of carmine-rose; fine form, good truss, and excellent habit. *Duke of Edinburgh* (Hoyle), a very fine stained or painted flower; fiery rose, lower petals heavily pencilled with dark lines; dark top petals, with narrow margin of pink; pip of fine form; good truss, free-blooming, and good habit. *Iron Duke* (Foster), orange-carmine lower petals, with a slight margin of pink; pure white throat; dark top petals, broken into with fiery rose, and narrow margin of rosy pink; fine form and substance. *May Day* (Foster), pure pink lower petals, large and striking white throat; very dark, almost black top petals, bordered with fiery red, and broad margin of pink; very smooth and pretty, and good bold truss. *Pollie* (Foster), rich crimson, heavily overlaid with dark; rich, dark, top petals, dwarf habit, and very free-blooming; a fine dark flower. Lastly comes *Syren* (Foster), pink lower petals, slightly marked and veined with orange-maroon, white throat; a very smooth and pretty flower of extra fine quality.

Of those new flowers that did not receive awards, the following promised well:—*Pretender* (Foster), orange-red, a fine high-coloured flower; *Brigantine* (Foster), pink, slightly flushed with rose, very free-blooming, and good habit; *Warrior* (Foster), a fine and showy high-coloured flower; *Kingcraft* (Foster), a showy painted flower, but as shown, a little undersized; *Sultan* (Foster), violet-

pink, veined with dark orange, a fine and promising flower; and *Purple Gem* (Hoyle), violet-purple, veined and stained with dark, novel in colour, and good in habit, though wanting in quality.

Of Mr. Wiggin's new flowers, the best appeared to be:—*Cornelia*, a large and bold variety; *Fascination*; *Hesperis*; *Lily*, a small, but very pretty white flower; *Pulcheria*; *Roxanna*; and *Vesta*, another white flower, and promising to be very useful for its free-blooming qualities.—Quo.

CHIMONANTHUS FRAGRANS.

 FINE plant of this most deliciously-scented deciduous shrub, growing here, flowered profusely last January, scenting the air all around it, and a handful of blossoms which were placed on my writing-table filled the room with the most pleasant of perfumes that could be wished for. The colour of these flowers is peculiarly modest, so that when a hand-bouquet which we had been making, and in which I had put a few of the blooms, was presented, the exclamation was, "Oh! what is it that smells so sweet?" In reply I had to single out the quiet-coloured, but gratefully-scented *Chimonanthus fragrans*,

"Less fragrant scents the unfolding rose exhales,
Or spices breathing in Arabian gales."

The plant alluded to is growing against a wall having a north-westerly aspect, and is so situated that in winter it never gets a ray of sunshine. Even in summer, with the exception of an hour or two, the sun's rays are considerably subdued before falling on the plant, having to make their way through trees immediately in front, and which rise to a considerable height.

During the summer of 1869 the plant ripened a considerable quantity of seed. In November a few of these were gathered and sown at once, and now I have a dozen nice thriving little plants.

We often observe that Cherries will set their blossom better when on an aspect where they can be shaded a little from the full blaze of the sun; but whether the shady situation of my *Chimonanthus* has had anything to do with the setting of its blooms, and the ripening of its seeds, I am not prepared to say.—W.M. MILLER, *Combe Abbey Gardens*.

CARPET-BEDDING AT BATTERSEA PARK.

 ARPET-BEDDING is that system of planting summer flower-beds which has come into vogue during the last two or three years, in which the whole surface of the beds is clothed with a carpet-like covering of low, close-growing plants. As applied to decorative gardening, it also implies the arrangement of plants having leaves of different colours in such a way as to work out ornamental designs. Since the first advent of this system, it has always been most effectively carried out by Mr. Gibson at Battersea Park, this year with fully as much success as on previous occasions, and we are glad to be able to give some

illustrations, borrowed from the *Gardeners' Chronicle*, which will serve to make the manner of planting intelligible.

The principal carpet-bedding at Battersea during the past summer consisted of two parallelogram and two circular beds, and the picture they presented on the fresh green turf was most exquisite. Of the two larger beds, not having illustrations to make a description intelligible, we shall only observe that they were perhaps the most effective, on account of the greater scope of the design. The planting was done with very much the same materials as the circles, and

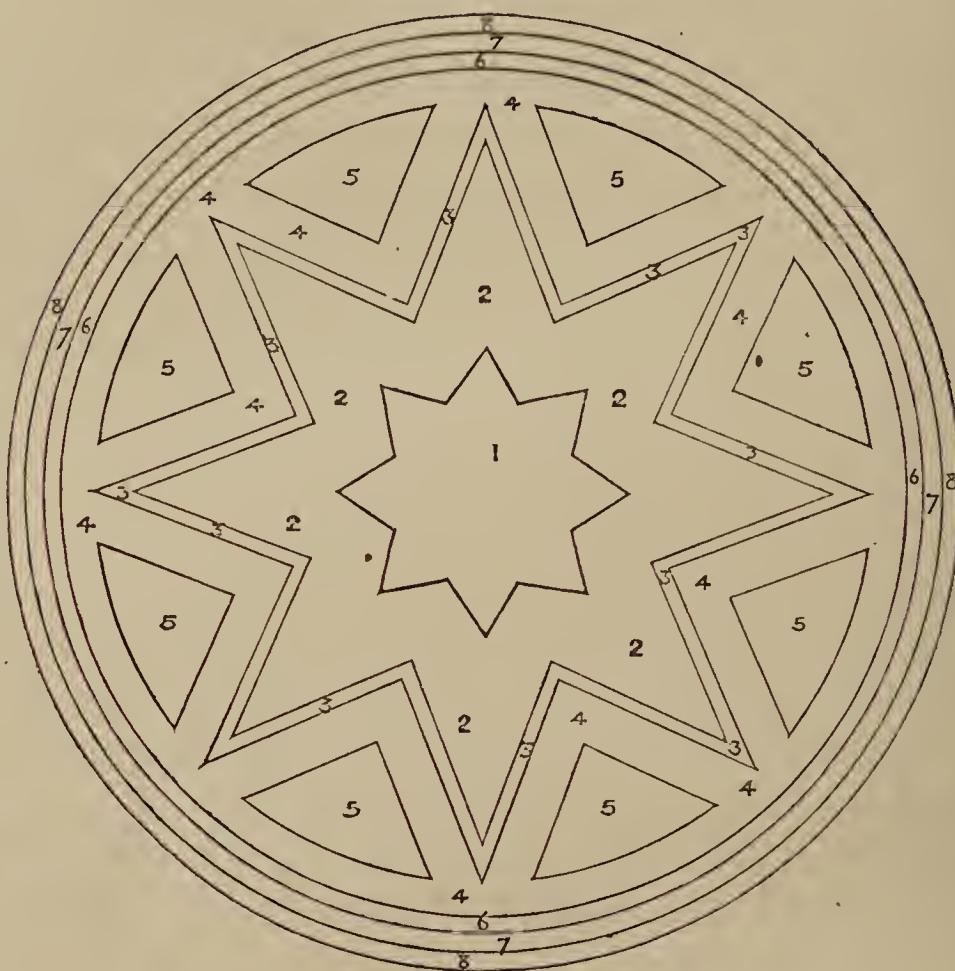


FIG. 1.

the whole was kept dwarf and close on the same plan. The circles were planted with the following subjects,—so closely, be it understood, that the surface was entirely covered by the plants, leaving no raw earth visible between them:—

Fig 1.—The central star (1) was composed of the yellow-leaved Pyrethrum Golden Feather; this was surrounded by a larger star (2) of the pale rosy-tinted Alternanthera amoena; next came a narrow line (3) of the grey-leaved Santolina incana; then a broader band and enclosing circle (4) of the buff orange-tinted Alternanthera paronychioides; then enclosed triangular beds of the bright orange-red Alternanthera magnifica; and finally, three boundary circles—yellow Pyrethrum Golden Feather (6), the rosy Alternanthera amoena (7), and the grey, rosulate-leaved Echeveria secunda glauca (8). These combinations were all admirable.

Fig 2.—Here the central star (1) was of the grey-leaved Santolina lavandulæfolia; next the deep orange-red Alternanthera magnifica (2); then Pyrethrum Golden Feather (3); a series of trapezoids of Alternanthera amoena (4); the

spaces intervening between the points of these lozenge-shaped masses, and extending outwards far enough to finish with an even circular line (5) *Santolina incana*; then in succession a circular band of *Alternanthera amœna* (6), and another of *Echeveria secunda glauca* (7). The design was very effective, but we gave preference to No. 1, in which the broad mass of *Alternanthera amœna* came out in a very telling manner.

The plants used for this style of bedding are necessarily low-growing and compact, but in order to bring out the design, it is imperative to keep them

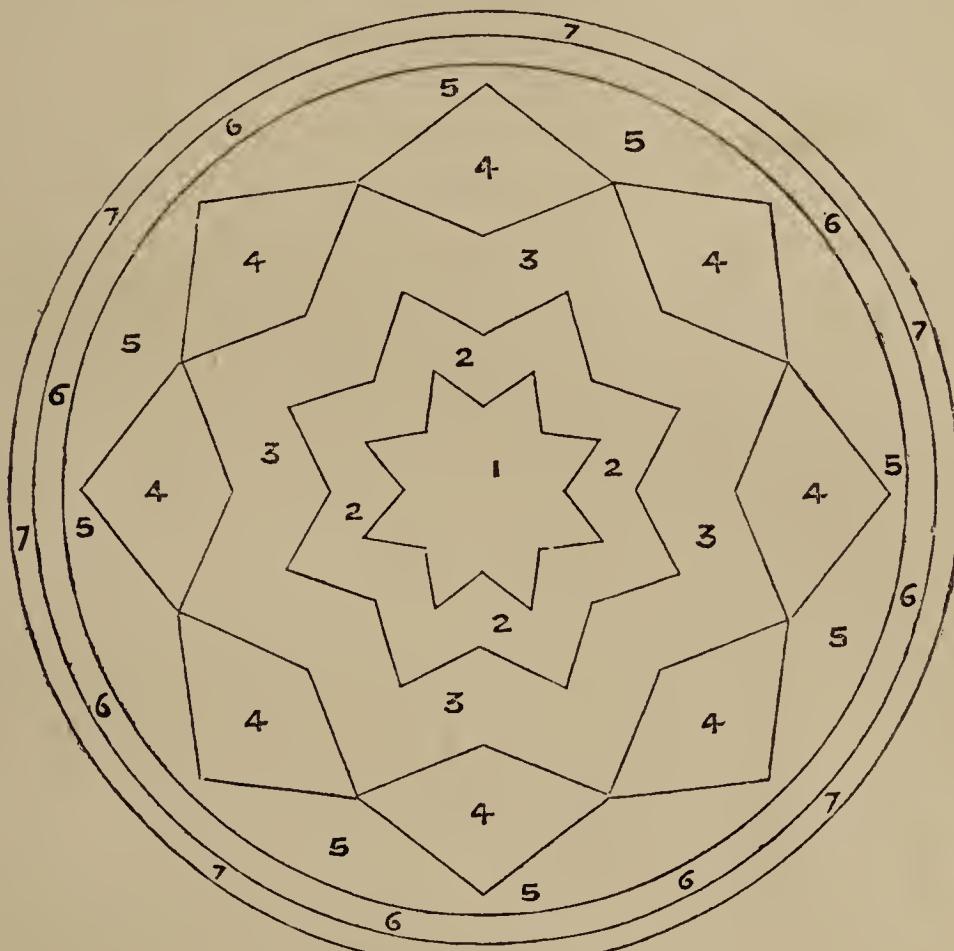


FIG. 2.

pinched-in to a regular height, though not necessarily uniform, as a slight variation has the effect of showing some of the colours as it were in sunk panels. No garden of any pretensions should be without its one or more carpet-beds, as they are equally effective with flowering plants, and far less trouble when once planted.—M.

NOVELTIES, ETC., AT FLOWER SHOWS.

THE waning summer, and the approach of the autumnal days, tend to thin the number of novelties among Florists' flowers produced at the few shows now held. Some new *Dahlias* were produced at the Exhibition of the Society for the Encouragement of Florists' Flowers, which took place at the Crystal Palace on the 6th of September. First-Class Certificates were awarded to *Annie Hobbs*, a pure white self-flower, of medium size as shown, but of fine outline and substance; this came from Mr. Thomas Hobbs, Lower Easton, Bristol.

A similar award was made to Mr. John Keynes, Salisbury, for Fancy Dahlias *Flora Wyatt*, pale buff ground, flaked with dark red, fine form and substance ; and *Richard Dean*, pale yellow ground, flaked with rich crimson, fine outline, petal, and substance ; both very promising. A fine yellow self-flower, named *John Neville*, was also shown by Mr. Keynes, but it was thought by the judges to be very similar to *Toison d'Or*, sent out by Mr. Turner last year. A First-Class Certificate was also awarded to Messrs. Downie, Laird, and Laing for *Nosegay Pelargonium Pink Queen*, conspicuous for the beautiful hue of deep pink seen on the flowers, very charming in colour, free-blooming, and a good trusser. In a splendid stand of *Verbenas*, shown by Mr. Charles J. Perry, of Birmingham, by far the most striking and beautiful flower was *Shakespeare*, a rich fiery-red variety, of uncommon brilliancy ; it is by no means new, but it should be noted by Verbena exhibitors, as it is one of those kinds that tell well in a stand.

On the next day the Floral Committee met at South Kensington, and Seedling *Dahlias* were staged by several exhibitors. Mr. G. Harris, Orpington, Kent, received a Second-Class Certificate for a yellow self-flower named *Flower of Kent*, of good shape and petal, but quite small in size, and looking as if it would not come much larger. The same award was made to Mr. G. Parker, Winkfield, for *Mrs. Watts*, a pale ground flower, slightly tipped with dark purple, of medium size and good shape. The same award was also made to Mr. H. Eckford, Coleshill Gardens, for *Verbena Miss Charlotte Mildmay*, blush, with deep pink centre, reaching almost to the edge of the flower ; good pip, and truss. A splendid bright dark crimson-flowered *Nosegay Pelargonium*, *David Garrick*, with magnificent trusses, of immense size, sent by Messrs. Bell and Thorpe, Stratford-on-Avon, received a First-Class Certificate. *Daphne elegantissima*, a variety of *D. indica*, having lance-shaped leaves, with a stripe of green along the centre, and a creamy-yellow margin, received a First-Class Certificate, and promises to be a very useful addition to the class of evergreen variegated shrubs. It was shown by Messrs. Veitch and Sons.—R. D.

GARDEN GOSSIP.

E are glad to have an opportunity of recording, from information communicated by Mr. A. F. Barron, who has lately paid a visit to Ireland, a case of complete success in dealing with the devastating *Vine Disease* (see 1869, 246). The Vines at Powerscourt, it seems, were attacked by it, as many others have since been, some two or three years ago, and suffered so much, that it was necessary to have recourse to active measures to arrest the progress of the evil ; consequently, the Vines were taken up, and their roots washed clean, and even scrubbed, so as to remove all trace of the insects. The soil was cleared out, and the Vines were replanted in entirely new soil, every precaution being taken to remove all traces of the pest, and to avoid all risk of contagion. These Vines are now growing away with the utmost vigour. The remedy is complete, and others who unfortunately may have been troubled with the disease, may with some degree of confidence adopt the remedy.

— THE new *Metropolitan Florists' Society*, which has for its object the

encouragement of florists' flowers, such as Pinks, Picotees, Carnations, Pansies, Dahlias, Tulips, Auriculas, &c., held its first exhibition at the Crystal Palace on September 6 and the two following days. It was a successful Exhibition, especially as regards Dahlias; indeed, it is probable that such a collection, consisting of over 100 stands, has not been witnessed for many years; the blooms, moreover, were remarkably fine, and called forth unbounded praise from the admirers of this fine autumn flower. Roses and Asters were shown in considerable quantity and in fair condition, and Gladioli and Hollyhocks were also very fairly represented. The Society, it is said, intends to offer prizes at the Royal Horticultural meetings in April and July, for Auriculas, and for Carnations and Picotees.

— IT has lately been pointed out that the true *Lilium speciosum* (often erroneously called *L. lancifolium* in gardens), now a very rare plant, and occasionally met with under the name of *cruentum*, is very superior to the dark-coloured varieties usually cultivated under the names of *rubrum*, *atrosanguineum*, &c., seedling forms which have usurped the place of the original and superior form, the characteristics of which are as follows:—A stature somewhat below the average; flower-buds sensibly shorter than ordinary; broader and more regularly recurved perianth segments, and consequently neater-looking flowers; a distinct white margin and tips, more apparent on the petaline segments; a more intense hue, and more richly-coloured spotting; and a somewhat later period of flowering. Its superiority to the long-petaled irregularly-recurving forms commonly seen is at once apparent. In the Knaphill nursery we lately saw a bed of this true *L. speciosum*, grown on from the original stock, which has never been lost there.

— THE question of how to measure the *Size of Flower-Pots* has recently been raised, especially as to whether the diameter should be taken from outside to inside at the top of the rim, or inside only at the top of the rim. The proper mode, however, is to take the length of a line extending from the inner surface on one side to the inner surface on the opposite side, just below the rim, at about the point to which the soil is filled up in using it,—practically 1 in. or thereabouts below the upper edge, in pots of the sizes used for exhibition purposes. As disputes sometimes arise on this point at country exhibitions, it may be useful to note how they should be settled.

— ONE of the most novel and noticeable features of the Show of the Société Centrale et Impériale d'Horticulture in Paris consisted of a large and brilliant collection of *Annual and Herbaceous Plants*, sent by MM. Vilmorin-Andrieux et Cie. This was remarkable not only for the number and immense variety of the plants exhibited, but also for the admirable way in which they were grouped. The plan of sinking the pots adopted at these shows, where the subjects are arranged on narrow raised borders of picturesque outline, in which the pots are plunged, was of special advantage in this case, and whoever arranged them was a true artist, and made out of a somewhat weedy class of plants as brilliant and effective a bit of colouring as an Indian shawl-weaver could produce. This plunging of the pots is a great improvement on the plan of our own exhibitions, where sometimes the pots are hideously obtrusive.

— NO doubt, the *Begonia boliviensis* is one of the finest species known under cultivation. It has been figured and described as being two-flowered, but Mr. Green notes that when flowering in the collection of Mr. Wilson Saunders, it bore from the axils of the leaves some 80 flowers or more, the whole in three-flowered panicles. The centre flower of each panicle was the male, and was about 3 in. in length, while the lateral female flowers were about 2 in. long. Mr. Saunders' plant formed a thick fleshy stem, 3 ft. 9 in. high, producing several branches.

— A REMARKABLE specimen of *Maréchal Niel Rose* has been recorded as growing at Wollaton Hall. This plant, which is a standard upon the Brier, was worked as a dormant bud about October, 1866. It now grows up an iron column about 12 ft. high; it then divides, and is trained along a wire 18 ft. on each side of the column, and nearly 10 ft. another way, the blooming branches depending in most graceful festoons, thus forming a floral picture such as perhaps no other conservatory in England can boast of.

Gloire de Dijon and Climbing Devoniensis are not less vigorous and beautiful. These Roses scarcely know the pruning-knife. The most they get of it is to cut away rude growth in the summer, and to remove the immature points of the shoots at the winter pruning.

— IN regard to *Vine-Pruning*, Mr. D. Thomson remarks that, according to his experience, tested over and over again, the spur yields a larger but less compact bunch, more likely to shank than the hard produce of the wood closer home, which yields a more compact, neat, and serviceable bunch, and generally with larger berries and stiffer foot-stalks than the larger buds farther up the shoot. I hold it to be wrong, he says, to judge of the produce of a Vine by the size of bunch. The aim of the family grape-grower is fine berries, and compact, moderate-sized bunches in great numbers. Tested by family usefulness, and commercially, by the demand of the market, the smaller and compact bunch takes precedence of the big bunch. If serviceable bunches are wanted, he advises to prune back to one bud; but if larger, looser, and less serviceable bunches, then to cut to the fourth or fifth bud.

— A DWARF, compact-growing *White Virginian Stock*, received from Messrs. Carter and Co., seems to be an acquisition for general decorative purposes. A single tuft of it forms a close, erect mass (much like *Lobelia Erinus* in habit), of some 6 in. high and 9 in. broad, and is clothed with a profusion of pure white flowers. It will form a capital white edging plant.

— DOUBTS have sometimes been expressed as to whether seedlings of the *Purple Beech* will come coloured purple. Mr. Mills, of Enys, notes that some six or seven years ago he found several seedlings under a Purple Beech, and that these are still equal in colour to the grafted trees from which they were raised. The size to which they have grown—about 8 ft. high, with branches from 4 ft. to 6 ft. long—sufficiently proves their permanence.

— A MATERIAL, under the name of *Antiflamine*, has recently been introduced at Paris for the purpose of extinguishing fire. It consists of 700 parts by weight of aluminous and magnesia silicates reduced to fine powder and dried at 212° Fahr.; 200 parts chloride of magnesium in crystals; 50 parts sulphate of soda; 50 parts chloride of lime; and 1 part tartaric acid=1001. The Antiflamine is in the form of a powder, perfectly soluble in water, and it is used by mixing it with the water in the fire-engines. The effect of its application, it is said, is to lower the temperature, and to surround the burning material with gases which will not support combustion.

— A SOLUTION for *Destroying Insects*, such as plant-lice and others, has been recommended as efficacious by M. Cloez, of the Jardin du Muséum, Paris. It is made of the following ingredients:—3½ oz. quassia chips and 5 dr. stavesacre seeds, in powder, are placed in seven pints of water and boiled down to five pints. When cooled, the strained liquid is ready for use, and may be applied either by a watering-pot or syringe.

— THE rapid oxidation of *Zinc Roofing* may, it is said, be obviated by coating it with a liquid prepared as follows:—One part, by weight, of copper scales, with one part of sulphuric acid and three parts of hydrochloric acid, are heated in a porcelain vessel until red fumes cease to be evolved and the copper is entirely dissolved; to this 64 parts of water are added, and the whole is then filtered.

— THE mortality which occurs amongst *Carp* in fish ponds in the spring season has often been noted. M. Duchemin has laid before the French Academy some observations thereupon, from which it appears that the toad is the offender. The toad is found squatting on the head of the fish, which it blinds by putting its forepaws over the fish's eyes. The fact had been previously observed, and it is said that the toads which thus attack the fish are invariably males.



Alpine Auriculas
J. John Leech

ALPINE AURICULAS.

WITH AN ILLUSTRATION.

SEEDLING Alpine Auriculas have been one of the specialties which, during the last three or four years, Mr. Turner of Slough has been in the habit of exhibiting at the spring shows at South Kensington; and rich and varied in colouring as they are, it is no matter of wonder that they should generally have acted on the admiring crowd as one of the principal centres of attraction. Certainly, few groups of flowers could have been more truly beautiful, while in their beauty few could have more thoroughly combined the elements of simplicity and gaiety; and when to this is added the fact that improvement is manifestly going on amongst them, form and colour proportions being moulded to the florist's standard, who can wonder that the Alpine Auriculas (with the selfs, perhaps) should, on account of their more decided and richer hues, prove more popular, at least in general public assemblies, than their grotesque brethren, the greens, the whites, and the greys—though even these we are glad to see meet with more attention and more admiration than they did a few years ago, and might probably again become popular, if growers could be induced to cultivate them, and exhibit them more freely.

The accompanying plate represents three of the most advanced of these improved varieties of the Alpine race. JOHN LEECH (fig. 1) is a rich shaded crimson, smooth and well proportioned, and one of the richest flowers in its class. SELINA (fig. 2) is a velvety shaded purple, with white paste, and in this feature approaching the ordinary self-coloured varieties. MONARCH (fig. 3) is another purple, with rich shading, and of remarkably fine shape and proportions, doubtless one of the best in its class.

Not only on account of their highly-coloured and richly shaded flowers, and the lively contrast afforded by the usually yellow colour of the paste, but also on account of their more vigorous constitution, and freer habit of growth, these Alpine Auriculas are likely to rise in popular favour.—M.

ROSES AND ROSE-CULTURE.

CHAPTER IV.—THE PILLAR Rose.

PERHAPS there is no form of the Rose more effective than the Pillar Rose, and if this method of fashioning the Queen of Flowers was more thoroughly understood, Pillar Roses would probably be more plentiful in our gardens.

A Pillar Rose when fully grown should be 8 ft. high, broader at the base than at the summit, and in the blooming season it should be clothed with flowers over its entire height. The Hybrid Chinese and Hybrid Bourbon are the best kinds for the purpose, on account of the masses of large brilliant flowers which they produce. The Ayrshires, Sempervirens, and Boursaults stand next in order of merit, and these will attain the height of 10 ft. or 12 ft. if required;

while the strong-growing Hybrid Perpetuals, Noisettes, and Bourbons, are available in positions where a maximum height of 6 ft. suffices. The three latter groups, however, offer fine varieties that will form well-furnished pillars more than 6 ft. high, and they bloom only by driblets after the first flowering; still, where it is desired to have flowers in the autumn, rather than in the summer, they may be preferable, and they form by no means inelegant objects.

Pillar Roses may be planted singly on lawns, in groups, or in avenues, and in the latter case, if the walk is of grass the effect is materially heightened.

It is by no means difficult to form a Pillar Rose; time and patience are the chief requisites. Choose from the nurseries the tallest and strongest plants, whether on their own roots or otherwise, and here, as elsewhere, be sure to obtain suitable sorts. This is a point of primary importance, and no amount of skill and patience will avail if it be neglected.

After the plants are fairly set in the ground, some recommend cutting back the shoots to one or two eyes, to induce the formation of a few strong shoots the first year. I have no grave objections to urge against this practice, and if the roots have been injured or curtailed in removal I recommend it; but under other circumstances my experience is in favour of leaving the plant unpruned the first year, or at the most restricting the operation of pruning to the removal of the weak, misplaced, and ill-ripened wood. Tie up the shoots to a neat stake immediately after transplanting, and the first growth springing from the top will further extend the height of the plant. This completed, the second or summer growth will probably arise from eyes nearer the base hitherto dormant, and while the former were weak and short, terminated with flowers, the latter will be vigorous wood-shoots, available for forming the plant, and giving flowers the next year. Pruning and training are the principal means by which we expect to carry forward our operations with success; but manuring must not be neglected. Be it remembered that a Pillar Rose has more to support and develop than a dwarf or standard, and a liberal diet should be accorded to it. Manure twice annually, in February and in July; and if convenient, water frequently with weak liquid manure in the growing season, especially in dry weather.

But we have something to say on pruning and training. When the plant has been a year or more in the ground (in the spring of the second year) pruning is absolutely necessary. Cut all weak, ill-placed, and crowded shoots, and shorten back such as are indifferently ripened to the first solid eye, taking care not to lower the height of the plant more than is necessary in carrying out these principles. The well-placed and well-ripened shoots should be pruned sparingly or moderately, in no case severely. After pruning, tie the branches round the stake with willow-twigs or tar-twine.

The operations of manuring, pruning, and tying, are to be repeated from year to year. About the third year the stake may be replaced by a small birch pole, with the snags left protruding some six inches from the sides, which have a

pretty rustic appearance, and serve to protect the branches from the action of the wind. Thus is the Pillar Rose formed, and few objects in the garden present a more gorgeous appearance.

When the pillar is five or six years old, now and then an original and main stem will show signs of debility. Such should be cut away close to the ground, and replaced by the young shoots which occasionally spring up at or near to the ground-line. By this practice the plant is rejuvenized and retained in perfect keeping over an indefinite period.—WILLIAM PAUL, *Paul's Nurseries, Waltham Cross. N.*

VEITCH'S AUTUMN CAULIFLOWER.

 HIS is certainly one of the best additions to the Brassica family we have had for some years past, the heads produced by this fine sort being compact and of marble-like whiteness. From the high recommendation given to this variety in the catalogue of the firm whose name it bears, I was induced to try it, and can fully endorse every word said there in its favour. All who have not hitherto included this variety in their seed lists would do well to do so: there is little doubt of those who have once tried it neglecting to do so again. The crop we are now cutting from gives promise of a supply for five or six weeks to come.—HENRY CHILMAN, *Somerley Gardens.*

NOTES ON PEARS AT CHISWICK.

 E have so often to supply lists of what we consider the best Pears of their respective seasons, that a few notes on those which generally prove satisfactory, as grown at Chiswick, may not be out of place in the pages of the FLORIST AND POMOLOGIST. The present season has been generally favourable for fruits, and Pears have been plentiful, and quite up to the mark in flavour. Beginning, then, with the earliest, we have firstly:—

1. DOYENNÉ D'ÉTÉ.—This generally ripens about the second week in July. It bears profusely as an open standard or pyramid. The fruit is small, very pretty, and nice eating if taken at the right time. It is best to be gathered off the tree before it is fully ripe, and only keeps in condition for about a week.

2. CITRON DES CARMES.—This ripens about the same time as Doyenné d'Eté, and is of about the same size. It bears very profusely as an open standard or pyramid. Some think it superior to Doyenné d'Eté; it requires to be gathered and eaten in the same way, as it only keeps in condition for a week or so.

3. BEURRÉ GIFFARD.—This ripens in the end of July; and the fruit is considerably larger than in the two preceding varieties, and of very excellent quality. The trees of this variety, however, do not seem to grow kindly or freely, and the crops have not been over abundant.

4. PÈCHE.—This ripens in the middle of August. The fruit is of medium size and of a fine rich flavour, slightly musky. It succeeds well as an open pyramid on the quince.

5. WILLIAMS' BON CHRETIEN.—This we have in use during the whole of August and the beginning of September, by taking care to gather the fruit in succession. There are few more valuable pears than this; the fruits when well grown are large, and it is a most abundant and certain bearer on all occasions as a standard, or a pyramid, or against a wall. No collection should be without it.

6. JERSEY GRATIOLI.—This ripens during September, and is a very worthy pear. The fruits are large and of excellent quality, being particularly juicy; and it is one of the most wonderful of bearers as an open standard. Well worthy of a place.

7. BEURRÉ D'AMANLIS.—This ripens in September,—early, sometimes indeed in August. The fruits are large, very handsome in appearance, and sometimes, but not always, good in quality. It is a great bearer, a very strong grower, and succeeds well as an open pyramid or standard.

8. LOUISE BONNE (OF JERSEY).—This comes into use about the second week in September, and continues for about a month or six weeks. This is the model of pears; no more useful variety is in cultivation. The fruits are of fair size, very handsome, and of most excellent quality. The tree succeeds well in every form, and is particularly well adapted for pyramids on the quince; a sure and most abundant bearer.

9. FONDANTE D'AUTOMNE.—This comes into use in the end of September and the beginning of October, and is in all respects most worthy. The fruits are but of medium size, but they are always first-class in quality. It is one of our standard sorts, and an abundant bearer as a pyramid on the quince.

10. SUFFOLK THORN.—This is another end-of-September Pear, and of first-class quality. The fruits are of medium size, but all uniformly good. This is a very hardy and prolific sort, and succeeds well as a tall standard.

11. COMTE DE LAMY.—This comes into use at the beginning of October. The fruits are generally rather small, but of most excellent quality, the flesh crisp and rich. A most profuse bearer as a pyramid, and well worthy of cultivation.

12. BEURRÉ Bosc.—This comes in during the month of October. The fruits are large, very uniform in quality, which is altogether good. This is a very hardy and most prolific sort, succeeding well as an open standard. A good, generally useful Pear.

13. THOMPSON'S.—We have no finer Pear than this. It is in season during the whole of the month of October, and is of splendid quality. The fruits are large and medium. It is not a very abundant bearer, and is somewhat tender.

14. BEURRÉ SUPERFIN.—This is a sterling first-class October Pear. The fruits are large and handsome, very distinct, and the quality all that can be wished for. It bears profusely as an open pyramid on the quince.

15. URBANISTE.—This is another end-of-October Pear, of excellent quality, the flesh very delicate and buttery. The fruits are but of medium size. It succeeds well as an open pyramid on the quince.—A. F. BARRON, *Chiswick*.

(*To be continued.*)

PITCHER PLANTS.

IN our volume for 1869, at p. 180, we had occasion to mention with commendation a handy volume just then published by Mr. Williams, and devoted to the description and culture of Stove and Greenhouse Flowering plants.

As a sequel to this, Mr. Williams has now issued a companion volume on Stove and Greenhouse Fine-foliaged plants, which will be found equally useful to cultivators, containing, as it does, popular descriptions of all the best plants of this class, with ample instructions for their cultivation. The volume contains a series of very useful memoranda concerning Palms—a noble group of plants becoming more and more appreciated amongst us.

Through the courtesy of Mr. Williams we are enabled to introduce one of the illustrations to this new volume, representing *Nepenthes Rafflesiana*; and as giving a good example of the manner in which this subject is handled, we extract a portion of the remarks relating to the family of Pitcher plants:—

The *Nepenthes* thrive admirably, and become very ornamental if placed in a moist atmosphere, and in a temperature of about 70°, which should be maintained during summer, and which may be allowed to increase by the influence of the sun many more degrees. In winter 65° should be the minimum, and of course less water must be given. The soil best adapted for these plants is good brown fibrous peat and sphagnum moss, about two parts of the former to one of the latter. They are surface-rooting plants, and do not require much depth, consequently they thrive admirably, and display their singular beauties to great advantage when grown in baskets. Water must be supplied bountifully in the summer, both from the watering-can and the syringe, and even during winter the supply must be larger than for the majority of stove plants.

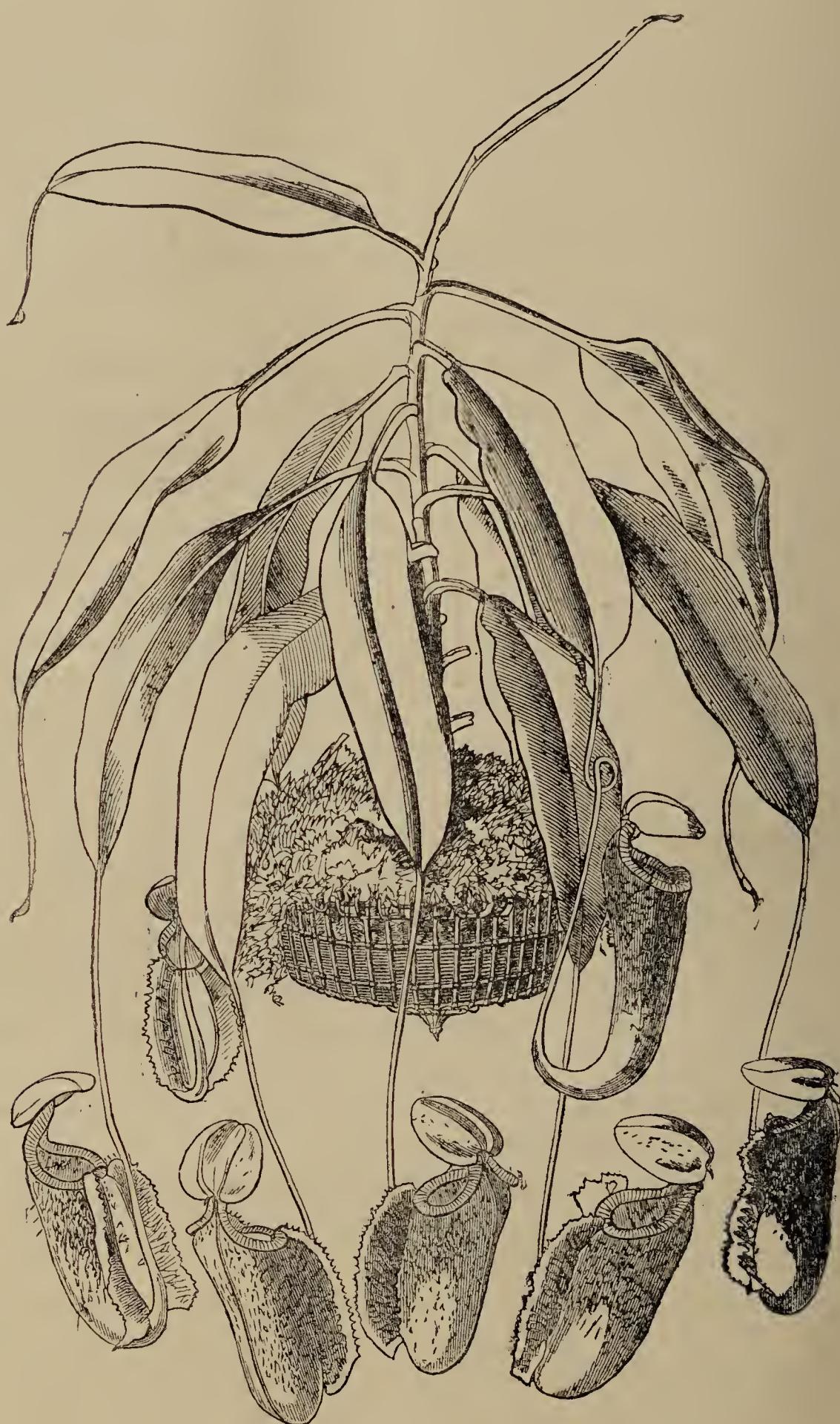
N. ampullacea.—A robust-growing species, with broad oblong leaves, upon the apex of which are situated its somewhat oval pitchers; the terminal lid is very small; colour, a uniform, light green. This plant frequently produces a quantity of suckers from the base of the stem, which form quite a crest of pitchers near the ground, giving a very peculiar and interesting appearance. It is a native of Borneo, Sumatra, and Malacca.

N. ampullacea picta in every respect resembles the species, saving in the colour of the pitchers, which differ in being light green, streaked and spotted with reddish-brown. Native of Borneo.

N. distillatoria.—As far as we are aware, this species is peculiar to the island of Ceylon. The plant is of free growth, with bright light-green leaves and pitchers, the latter being some six or eight inches in length. It forms a fine specimen, and withstands a lower temperature better than any other kind we know. Native of Ceylon.

N. distillatoria rubra.—This variety differs from the preceding in having deep blood-red pitchers, which render it very distinct and ornamental. It origin-

ated in this country from a packet of seeds of *N. distillatoria* received from Ceylon.



N. Dominiana.—This is said to be a garden hybrid, and is very handsome and ornamental. It is of robust habit, producing stout, broad, oblong, dark-green leaves. The pitcher are several inches long, and deep green in colour

N. gracilis.—A species which has been considered identical with *N. laevis*, but however great the resemblance in a dried state, the plants appear distinct when living. Unfortunately, we have not been able to compare the living flowers. The stem of the plant now under consideration is slender; the leaves are sessile and broadly decurrent, forming almost an uninterrupted way between each leaf; it tapers to a point, and the pitchers are from three to four inches in length, having two rows of ciliate hairs in front, and together with the leaves, are of a deep shining green. It is a native of Borneo.

N. gracilis major.—This is said to be a variety of the preceding, but we cannot think that it bears any relation to that plant; it is very handsome, and well deserves general cultivation. The stem is somewhat slender; the leaves broad, not decurrent, and dark green; the pitchers are much larger than in *N. gracilis*, contracted upwards somewhat a little above the centre, winged, and furnished with ciliate hairs in front, ground colour dark green, streaked and blotched with reddish brown. Native of Borneo.

N. hybrida.—Leaves oblong, broad, and deep green. It produces pitchers about eight inches in length, winged and ciliated in front, dark green in colour. It is said to be of garden origin.

N. hybrida maculata.—This is also said to be a garden variety. It resembles the preceding in general appearance, but the pitchers, which are some ten inches long, are profusely streaked with reddish-purple upon a dark-green ground. A very handsome plant.

N. Hookeriana.—This is a magnificent species, with large, broad, oblong leaves, which are thick and leathery in texture, dark green on the upper side, paler below. The pitchers in the young plants are broadest at the base, measuring some 4 in. in length and 2 in. in diameter; the edge of the mouth is rolled inwards, and ornamented with an annular disk; lid much smaller than the mouth. The front is ornamented with broad wings, which are ciliated at the edges. As the plants increase in height and age, the pitchers assume a totally different shape; they become narrow at the base, and lose the broad wings which ornament them in a young state; the portion of the midrib which supports them is attached to the base of the pitchers in front when young, but in the second state it is completely reversed, and its attachment is behind. What is the cause of this we cannot say; the change is, however, not sudden. We have had plants with pitchers of both forms upon them at the same time, and also pitchers exactly intermediate, and the intermediate ones always between the extreme forms. The pitchers in both stages are dark green, profusely streaked and blotched with dark red, rendering them very attractive and interesting. Native of Sarawak.

N. laevis.—A very elegant, small-growing plant, very much resembling the previously named *N. gracilis*. It is, however, more robust in habit; its leaves are not decurrent, but merely sessile; they are not so long, and are more obtuse;

the leaves are dark green above, paler below; pitchers about three inches long, and somewhat lighter-coloured than the leaves. Native of Borneo.

N. phyllamphora.—A species of free growth, and somewhat robust habit, producing large, broad, oblong leaves of a bright apple-green. The pitchers are of the same colour, and measure from five to ten inches in length, not winged, but furnished with a few hairs in front. It is very handsome, and is the most abundant kind in cultivation. Native of the Labuan mountains in Borneo, at an elevation of 2,500 ft.; it also occurs in Malacca, Singapore, Java, and New Guinea.

N. Rafflesiana.—The present species somewhat resembles *N. Hookeriana* in habit. The plant is very robust; the leaves large, oblong, thick, and leathery in texture, dark green on the upper surface, paler below. The pitchers are from six to twelve inches in length, the lid large; margin of the mouth rolled inwards, and ornamented with an annular disk; the colour is dark green, beautifully spotted, and blotched with red. The pitchers are winged in front when produced upon leaves near the base of the stem, or upon young laterals, but afterwards they undergo the same changes as those of *N. Hookeriana*. It is found in the mountains of Kina Balou, in Borneo, at 3,500 ft. elevation, and upon the mountain of Labuan; also in Sumatra, Singapore, and Malacca.

N. sanguinea.—This is an extremely rare plant in cultivation, and, as far as we are aware, it is far from common in its native habitat, or at least it has rarely been found by plant collectors. The leaves are dark green, but the pitchers are its chief attraction, being from five to ten inches in length, and of a deep blood-red colour. It is a native of Java.

N. villosa.—This is a rare plant in cultivation, of robust habit, producing broad, somewhat spathulate, leaves, of a dark ferruginous green. The pitchers are from ten to twelve inches long, dull green, faintly blotched with reddish brown, winged in front, the wings deeply lacerated at the edges. The annular disk of the mouth is very broad, and reddish pink in colour. Lid small, rusty green, blotched with reddish brown. It is found growing in swampy places on the mountains of Kina Balou, Borneo, at 8,000 ft. and 9,000 ft. attitude.—B. S. WILLIAMS.

YELLOW-LEAVED BEDDING PLANTS.

WHEN visiting Mr. Turner's Nursery at Slough, a few days ago, I saw there a long line of his new yellow-leaved *Tropaeolum ochroleucum*, and was much pleased with it. It had met my eye while walking from the Slough station to the Nursery. Passing a nice villa residence in the main road, with a flower garden in front of it, I was struck with the appearance of a yellow edging to one of the circular beds, and stopped to examine it, as it appeared too bright for the Golden Feather Pyrethrum. It turned out to be a ring of the Golden-Leaved *Tropæolum*; and when I reached the Nursery, its appearance there deepened the conviction in my mind that it is a most useful

and effective bedding plant. Those who thought it would prove "miffy" will be glad to know that no such charge can be laid against it. In addition to its superior colour, it has one great advantage over the Pyrethrum, that it does not bloom, or if a flower or two should put in an appearance, they appear incapable of rising above the foliage. Mr. Turner told me he found it produce the best plants from seed, but the difficulty appears to be to get seed from it. Mr. Turner is starving some plants in large 60-pots, with a view of driving them to seed, and a few of them seem to be yielding him a fair harvest. Bedders-out should make use of this plant another year.—R. D.

LILIUM MAXIMOWICZII.

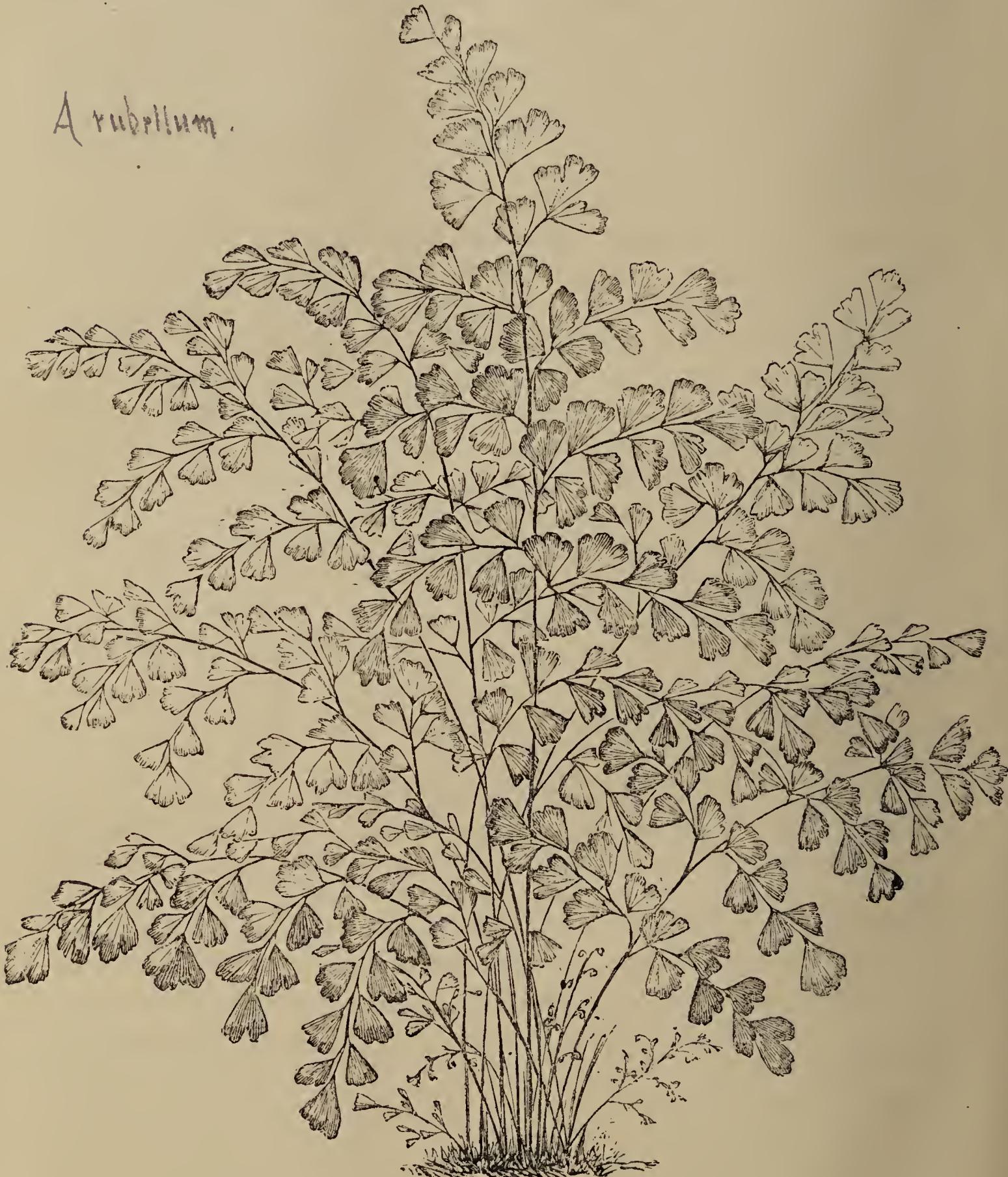
HIS pretty little hardy Lily, which has been described and figured by Dr. Regel, is nearly related to *L. tenuifolium*. It was introduced to St. Petersburgh from the Japan Gardens by Maximowicz, after whom it has been named. The slender stem grows from two to three feet high, with alternate linear three-nerved leaves. The flowers are comparatively large, and of a brilliant orange-scarlet colour; the segments sessile and lance-shaped, curved backwards, wavy at the edge, having a nectar furrow at the base, and in the lower half dotted with blackish-purple elliptical spots. The weaker stems produce only a single flower, but the stronger ones bear three or more, singly from the axils of the upper leaves.

Though not to be compared for showiness with some of the larger-flowered sorts, as *aurantum*, *speciosum*, *tigrinum*, &c., it has a beauty of its own, which renders it quite worth growing in company with the other slender-habited species, as *tenuifolium*, *Szovitzianum*, *Leichtlinii*, &c.—M.

ADIANTUM DECORUM.

N this new Peruvian Maidenhair Fern, which has been lately introduced by the Messrs. Veitch and Sons, of Chelsea, we have one of the most useful and ornamental species of moderate stature, as yet made known. In appearance it somewhat recalls to mind both *A. concinnum* and *A. cuneatum*, and yet it is not like either of them. It agrees with *A. cuneatum* in having much the same general outline of frond, and in bearing small pinnules, only in this case they are more variable in form; whilst it rather agrees with *A. concinnum* in the tendency of the basal pinnules to overlie the main rachis, but the fronds are triangular-ovate, instead of elongate or lanceolate in figure. The fronds of *A. decorum* are, moreover, more erect in growth, owing to the stout substance of both stipites and rachides, a matter of some consequence as regards the ornamental capabilities of the plant, for though at first sight it might be supposed that sturdiness and stiffness of growth were not compatible with elegance, yet it is not so, at least in this case, for here the small size of the pinnules, and their profusion and pleasing arrangement, secure a due share of elegance; while the stalks are just firm

enough to hold the fronds well up to view, and to permit of the plants being handled or removed from place to place with little risk of the damage to which those with weaker supports would be exposed. We therefore look upon this



plant as one of the most useful of recent temperate-house ferns for decorative purposes. It has been thought to be the same as *A. Wagneri* described by Kuhn, but the ovate-lanceolate fronds of that plant sufficiently distinguish it.—THOMAS MOORE, *Chelsea*.

THE GARDEN MENTOR.

NOVEMBER is generally characterized by dull and dark days, accompanied with thick and choking fogs, which are also signs of the advance of winter, and remind us that proper precautions should be taken for the protection of everything that may require it. The woods are now bare, and there is little in the way of flowers in the borders.

KITCHEN GARDEN.—All root crops should at once be taken up and stored away, if not already done. *Endive* and *Lettuce* should be lifted and planted in dry soil in frames or sheds. *Walcheren Cauliflowers* should be watched, and the outer leaves bent over the hearts of the plants, to guard them against injury from frost; during the early part of the month they will do very well in the open ground, if the weather be mild, but towards the end, all the plants that are showing heads should be lifted and planted in frames and protected; these will come in useful during the winter. *Spring Broccoli* plants should be laid down with the heads facing the north. Young *Cauliflower* and *Lettuce* plants in frames should have abundance of air. *Globe Artichokes* should have a good coating of half-rotten dung over the roots. *Celery* should be finally earthed up, and during severe frosts should be well protected with dry litter. Stir the surface soil between the rows of *Spinach*, *Cabbage*, and *Lettuce*, and dust them with lime. Remove the dead leaves from off *Brussels Sprouts* and *Broccoli*. Cover *Seakale* with leaves to force. Manure and dig, or trench, all vacant ground.

Sow: Early Peas and Beans on a warm border the third week to stand the winter; Radishes on a warm border; Mustard and Cress on gentle hotbed.

FORCING HOUSES.—*Pines*: The instructions given for last month will, if they have been properly carried out, leave comparatively little to be done. The directions relating to temperature, watering, and ventilation hold good, and should be particularly attended to. *Vines*: Use every precaution against damp in all houses where late grapes are hanging; attend to the removing of decaying leaves, which now only assist in causing damp. If the Vines for early forcing are planted outside the houses, the borders should have a good covering of long dry litter; if they are planted inside (which is much the best), they should have the surface broken up, and should receive a copious watering of liquid manure. As soon as the grapes are cut and the leaves begin to fall in late houses, the Vines should be pruned, and the houses thoroughly cleaned. *Peaches*: Give abundance of air, but keep the houses dry. Mulch the outside borders of the early houses, and fork over and water the inside borders. The trees should be very gradually excited at the present season; begin with a night temperature of about from 40° to 45° . Prune and dress the trees in the late houses, if not already done. Trees in pots should be well protected from frost. *Figs*: Give abundance of air in mild weather, but be careful to shut up at night; the temperature should not be allowed to get below 35° , otherwise the embryo Figs may suffer. Trees in pots should not be left exposed to frosts. The trees should

now receive their winter dressing, by removing all dead leaves, old ligatures, and everything likely to harbour insects; they should also receive a dressing of the mixture recommended for Peach trees at p. 224. *Strawberries*: These, if they have been properly attended to, ought now to be good plants, with fine bold crowns, able to do good work next season. As they will now have done growing, they should be put into winter quarters, placing a sufficient number for the first batch or two of early forcing plants into a cold frame, pit, or vinery. Where there are a large quantity, they may be conveniently stored by stacking them in ridges, which should be thatched at top, and the plants protected in frosty weather. *Cucumbers*: Maintain a temperature of 70° at night, and 80° during the day. Be careful not to let young plants bear too many fruit at a time, as it weakens them. Give tepid water when they require any, and give a little air at every favourable opportunity.

HARDY FRUIT GARDEN.—If the weather be mild, the present is a good season for planting fruit trees; but the sooner they are planted the better, as they get established before the cold drying winds of spring set in, and start into growth with more vigour than those planted in February and March can possibly do. All borders intended for fruit trees should be properly drained before any trees are planted. All newly-planted trees should have a good mulching of half-rotten dung, to protect the roots from frosts. As soon as the leaves are off the trees, the pruning of *Apples*, *Pears*, *Plums*, and *Cherries* should be commenced. Where the spurs are crowded they should be well thinned, and also the buds, leaving the plumpest and best. This is a good time to thin out overcrowded branches in *Orchard trees*, and to scrape the moss off the stems. Gather in the late fruit at once, and look frequently over the stores in the fruit-room, picking out any fruit that shows the least symptom of decay. The crops of most kinds have, this year, been excessively heavy, so that only light crops can be expected next season, except where the fruit was properly thinned.

FLOWER GARDEN.—*Plant Houses*: It is of the first consequence in the management of plants that they should have particular and steady attention during the winter months, but more particularly during the first few weeks after bringing them from the open air, or until such time as they become inured to the in-door climate. Sometimes plants, after having completed their growth in the open air, when staged in the greenhouse commence a new growth, as though it was spring, to their great injury when the proper growing season arrives; this is all owing to improper management. *Soft-wooded Plants* will require considerable attention. Look over *Pelargoniums* and remove decaying leaves and superfluous shoots; shift any that may require it; fumigate for green fly; keep up a sweet, healthy atmosphere. *Hard-wooded Plants* will now be in a comparatively dormant state, and the chief attention necessary will be to give plenty of air at every favourable opportunity, and to be particular in watering.

Pits and Frames.—All plants in these structures must now be carefully watered;

not with a rose, but individually, with a small-spouted pot; and it is best to do this in the morning, so that the moisture may get dried up before night. The drier the pits can be kept, the better for the plants at this season. Plants in pits and frames should never be left exposed in rainy weather at this season; still, all the air possible should be given when the weather permits; cover well up at night in frosty weather.

Out-Doors.—At the present season, and for some time to come, there is little to interest one in the flower garden. The summer bedding plants will now have done flowering, and should be cleared away at once, if not already done; and the beds should be manured, dug, and planted with bulbs and spring-flowering plants, as previously recommended. *Dahlias* should be lifted, dried, and stored away. *Hollyhocks* and all other plants past flowering should be cut down, and the borders dug. *Bulbs* should be planted, if not already done. It is a good season for planting *Roses*. *Trees* and *Shrubs* of all kinds may now be planted in open weather. Proceed with alterations; no alterations or work that can be done before Christmas should be deferred until spring, as that season always brings its own work. Keep leaves swept up as they fall; roll the grass before mowing; and mow the last time for the season. Sweep and roll walks.—M. SAUL, Stourton.

GRAFTING-WAX SUPERSEDED.

NOT long ago, the Mastic l'homme Lefort, or cold grafting-wax, was first brought under our notice, and this we have found exceedingly handy when grafting small things, on account of its being ready for use at all times. Latterly we have been using another material, which for certain purposes is infinitely more handy, superseding indeed not only the grafting wax, but the very matting or string by which we tie graft and stock together. This material is nothing more nor less than sheet indiarubber. It was Major Clarke, than whom there is no greater nor more original horticultural experimentalist, who first called our attention to it, and it is really very wonderful how handy it is. Indiarubber may be purchased, in sheets of about the thickness of brown paper, at some of the London shops which deal in articles of that class, for a mere trifle—6d. or 1s. the square foot. The undressed sheets are the best. Before using it wash it in clean water, and dry it by dabbing it with a handkerchief or cloth.

The sheets are cut as required into pieces of about an inch in length, and about an eighth of an inch in width, according to the space to be covered, and the little band so formed is twisted round in the same way as a piece of matting would be, and of course elongates considerably, encompassing the stem two or three times. The end is simply, yet securely fastened, by just pressing it firmly into the other with the thumb-nail. This forms it into a simple elastic band, which keeps its hold as long as required. For grafting choice little subjects, and

for delicate operations, the small strips of sheet indiarubber are extremely handy and useful, and far more easily fitted than a piece of matting.—A. F. BARRON.

CORDON FRUIT TREES.

THE past has been an abundant Fruit season. Take it altogether, probably the oldest inhabitant scarcely remembers a time of greater plenty. Here and there we have heard of the fruit being small, but most of that which has come under my notice has been full-sized and of good quality. Of course, this applies to crops that had been thinned. Those that were left wholly to nature must in many cases have been small, from a sheer want of space to grow in. Apples, Pears, or Plums, clustered together like Cherries, and left to fight for room at such close quarters, must either have thrown each other off the tree, or agreed to remain within the narrowest space. It is not, however, of such general matters that I purpose writing, but of Cordons only. It may be of service as well as interest to many readers to inquire how these have borne themselves through this exceptionally hot and dry season.

Our horizontal Cordons are young, only about two years old from the bud, some of them, mostly Plums, three years. They are trained at distances of from 6 in. to 15 in. from the ground. One objection that has been urged against Cordons is that in such positions the trees would be too hot; the opposite side object that they would be too cold; but it does not seem as if they had been either. They flowered freely, and the Plums when in flower had a few spruce boughs laid over them. The Apples had no protection whatever. The Plums set admirably a very full crop; Cherries were thinned off, and a heavy crop ripened. This is the more gratifying, as from some peculiarity of soil, or site, we have great difficulty in getting crops of Plums in this garden, either from standards, bushes, pyramids, or walls. The Cordon Plums were a decided success, and though the Jefferson and other sorts were not quite so large as the same varieties on the walls close by, they seemed even better flavoured. Gages, again, were of the highest quality, and what was singular, were larger than the average samples grown on walls.

I am also well satisfied with the Apples. Such varieties as the Calville Blanche, Reine des Reinettes, Reinette du Canada, Royal Russet, &c., have been very fine, and all that have fruited have fruited well, looked very beautiful, and been much admired.

One peculiarity about the Cordon Apples is that they have neither been pinched nor cut since they were planted. They were planted in good loam in the spring of 1869, maiden trees on the French Paradise stock, and tied to their supporting wires full length. During the summer they put forth leaves along their whole length, but made no side growths. Neither did the main shoot make any start; but towards the autumn most of the buds in the axils of the leaves were plumped up into well-rounded fruit-buds. I have seldom seen a

more beautiful sight than the Cordons presented this spring, their tiny boles from base to summit dyed pink with bursting buds. The shoots of these treelets set a large crop; but none were permitted to carry more than a dozen, most of them far less, and, as already mentioned, they have finished them well. But the curious fact is, they have not grown. Neither pinching-thumb nor slashing-knife has yet touched them, and they are studded with blossom-buds as thickly as the ground is with hailstones in March. Next year, with favouring skies, the crop will be just what we wish to take, and as many as the little trees can string on to their slender single cordon. The probability is that they will also make some move next year, but this is doubtful, and if not, I will plant closer, say, the length of the maiden cordon, 18 in. or 2 ft. apart, instead of double or treble that distance.

One thing I have quite determined upon, not to cut back maiden or newly-planted Cordons. Left at full length, they immediately turn their attention to fruit-bearing. Cut back at first they make wood, and starting vigorously on this tack, they may not know when to stop, and may have to be pinched mercilessly at top or severely cut in at bottom to drive or force them into fertile ways. How much better to lead them into the paths of fruitfulness at first, and then, should they become weak or weary in well-doing, to stimulate them with manure, liquid or solid, to help them to carry an annual crop without injury to their health, strength, and life! Some have complained of cordons running out into cart-ropes the first season. To all who have complained of excessive growth, or to those who grow much fruit in little space, I confidently recommend the simple plan of pruning not at all. To this I would add the short injunction,—Don't pinch, should the fruit not check growth sufficiently, but replant the cordon in the autumn, and leave the top full length. Under such treatment a fruitful habit will be established.—D. T. FISH, *Hardwicke*.

GYMNOGRAMMA TARTAREA AURATA.

HIS is by far the finest Gold Fern which has yet been obtained for our gardens, or, we may add, the finest which is yet known. It is a large and vigorous-growing plant, with fronds 3 ft. long, and arching after the manner of those of *Gymnogramma tartarea*, which it also resembles in the broad, blunt-ended, almost obovate and slightly divided pinnules. The stout stipites occupy about half the entire length of the frond, and the lamina is of an elongate, ovate figure, measuring in the larger fronds some 14 inches across the base. The pinnæ are rather unequal in size and form, slightly incised, especially towards the base, which is decurrent, while the apex is dilated, rounded, and scarcely toothed. The lobes in the apical portion of the pinnæ, as well as in the upper part of the frond, are confluent. The upper surface is of a dull opaque green, while the under side is thickly clothed with a deep golden-coloured powder.

This grand addition to our Gold Ferns has been introduced by the Messrs.

Veitch and Sons, from Peru, where it was discovered by their collector, Mr. Pearce. In the private collection in the Royal Exotic Nursery, at Chelsea, we have on several occasions seen it growing in great beauty. It will no doubt ere long be ready for distribution, and we look upon it as indispensable in all collections of stove Ferns.—T. MOORE, *Chelsea*.

CULTURAL DIRECTIONS FOR THE ROSE.

SUCH is the title of a little brochure on Rose-culture by Mr. Cranston, of the King's Acre Nurseries, near Hereford, of which the third edition is now before us. It professes to be, and we believe it is, "a thoroughly practical guide to the Amateur, in all matters connected with Rose-culture." The book is divided into two parts, in one of which the various practical operations connected with Rose-growing are explained, while the other is devoted to lists of the best roses in the various classes, and selections for various purposes. We quote as an illustration of style, from under the head of "Forcing Roses," a description of the mode in which that operation is carried on in Paris—a description which, owing to the deplorable War, must relate rather to the past than the present:—"The French accomplish much in the way of forced Roses, and their mode of growing them in small-sized pots for market is very clever. The plants which they use for this purpose are all budded upon the Dog Rose, of all heights, from dwarfs to standards, and the pots in which they are grown are rarely more than seven or eight inches in diameter, and many are grown in five or six-inch pots. The plants have a very unique appearance, and are usually loaded with deliciously fragrant flowers. With few exceptions the gardens or nurseries where these are grown are small and untidy, and the glass houses are of the modest description, having the most poverty-stricken appearance; nevertheless the healthy growth of the plants therein shows that they have been well tended, and that the growers know full well how to manage them.

"One of the largest establishments for forced Roses I have ever seen, and which I believe is the largest in France, is that of M. Laurent, 88 Rue de Louvain, near Paris. He has some three or four acres entirely covered with low span-roof and lean-to houses and pits, specially for forcing Roses and Lilacs, these being the only two plants he cultivates. I am quite afraid to say the number of Roses which are forced here annually, but I should judge there could not have been much less than fifty or sixty thousand. It was early in February when I saw them, when the houses and pits were all full, and many thousands of plants outside ready to take the place of the early forced Roses, as soon as their blossoms were over. The blossoms are gathered every morning, and sent to Paris for bouquets and decoration, for which there is always a large demand. The plants from this establishment are not sold. M. Laurent is also famous for forcing Lilacs. His method of producing white bloom from the purple lilac is not generally known or practised, nor am I thoroughly in the secret, but it is never-

theless a fact that he depends entirely upon the purple lilac to produce the finest white blooms throughout the winter."

Let us hope that Rose-forcing near Paris and Rose-growing throughout France may soon again be resumed, with as much spirit as heretofore, and surrounded by peace and plenty.—M.

EARLY PEAS.

HE season is again at hand when most gardeners will be thinking about sowing Peas for the first crop ; and to the amateur this is a perplexing question. Some of our best kitchen gardeners hold that the only sure way of getting Green Peas in May, is to sow them under glass, and plant out in spring ; while others, and to this class I belong, maintain that, all things considered, there is nothing like November sowings for large and early crops. No doubt, localities and other surrounding circumstances have much to do with both sides of the question, but after years of practical experience with both systems, I have discontinued growing under glass, preferring to sow out-of-doors, and to leave the plants to weather the winter.

On referring to our Vegetable Book, I find *Sutton's Ringleader* sown November 7, 1867, was gathered from on the 21st of the following May. On November 10, 1868, the same sort and *Beck's Little Gem* were sown, and these were gathered from on the 29th of May following. Again, on November 11, 1869, we sowed six quarts each of *Ringleader* and *Little Gem*, from the latter of which we gathered a peck of well-filled pods on the 23rd, and from the other a peck on the 24th of last May. If the weather is suitable about the 7th inst., I shall sow this season a peck of seed of *Little Gem*. I find this excellent sort quite as early as *Ringleader*, and being a green marrow, much superior to it in quality. It can be sown at 2 ft. from row to row, and is about as well without sticks as with them. Another recommendation is, that being stronger and stiffer in the haulm, it stands the cold, frosty winds better than any of the slender-stemmed early-frame sorts. I need hardly add that we don't allow the rats, mice, or sparrows to do as they like with the plants during the winter. Rubbing the seed with a little red-lead before sowing is a most effectual remedy against the attacks of the two former, and an occasional use of the gun and a dusting with dry soot keep the birds at bay. Altogether, we have not one-half the labour involved in coddling them in drain-tiles, pots, boxes, &c., and yet they yield at least one-half more pods.—J. McINDOE, *Palace Gardens, Bishopthorpe, York.*

AGAVE BESSERERIANA.

N the early part of our present volume (p. 41) we gave figures of two forms of the Mexican *Agave horrida*. We now add illustrations of two forms of *Agave Bessereriana*, for which, equally with the foregoing, we are indebted to M. Laurentius, of Leipzig. The plants were collected in 1868, in Mexico,

by M. Besserer, and have since passed into the hands of M. Laurentius, by whom they are now offered for sale.

As will be seen from the figures, these plants are considerably smaller than *A. horrida*, and would form very nice additions to a collection of these interesting succulents. They have the leaves nearly of equal breadth throughout. The characteristic marginal spines are but slightly developed, but the apex is termi-

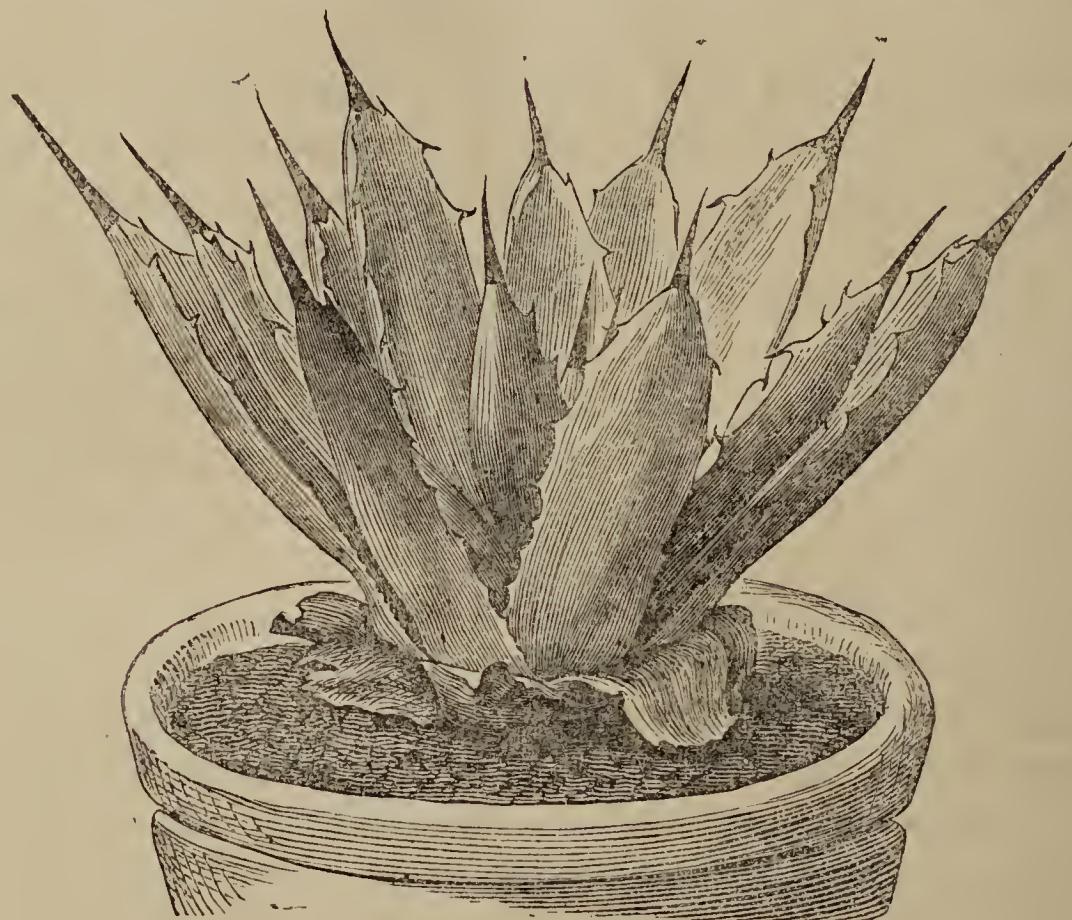


FIG. 1.

nated by a very strong and formidable dark-coloured spine of considerable length. There are two varieties, introduced at the same time, the one having green, the other glaucous leaves, and respectively named *A. Besseriana viridis* (fig. 1), and *A. Besseriana glauca* (fig. 2). We are very glad indeed to see that these interesting plants are advancing in public favour.—M.

THE WILD GARDEN.*

To understand the aim of this little book, the author tells us, it is desirable to take a broad glance at the past and present state of English flower gardens. From about twenty years ago, back to the time of Shakespeare, the flowers cultivated in our garden were nearly all hardy ones; they came from northern or temperate regions, in most cases from climates very like our own; they were as hardy as our weeds; they bloomed early in the keen spring air, and late in the wet autumn gusts, as well as in the favoured summer's day. Passages from our greatest poets and writers—Shakespeare, Milton, Bacon, and others—

* *The Wild Garden, or our Groves and Shrubberies made Beautiful by the Naturalization of Hardy Exotic Plants; with a Chapter on the Garden of British Wild Flowers.* By W. Robinson, Author of "Alpine Flowers for English Gardens," &c. London: Murray.

embody the names of the principal classes of flowers used in this ancient style of gardening, and show us what infinite delight it was capable of affording, and

its charms we may yet see in little cottage gardens in Kent, Sussex, and many other parts of England, though the scarlet Geranium has begun to eradicate all the fair blossoms of many a sweet little garden once, and often yet, “embowered in fruit trees and forest trees, evergreens and honeysuckles, rising many-coloured from amid shaven grass-plots.”

About a generation ago, he continues, a taste began to be manifested for placing a number of tender plants in the open air in summer, with a view to the production of showy masses of decided colour. The subjects selected were mostly from subtropical climates and of free growth.

Placed in the open air of our genial early summer, and in fresh rich earth, every year they grew rapidly and flowered abundantly during the summer and early autumn months, and until cut down by the first frosts. The brilliancy of tone resulting from this system was very attractive, and since its introduction there has been a gradual rooting out of all the old favourites to make way for the bedding system. But even on its votaries the system at present in fashion is beginning to pall. Some are looking back with regret to the old mixed-border gardens; others are endeavouring to soften the harshness of the bedding system by the introduction of fine-leaved plants, but all are agreed that a great mistake has been made in destroying all our sweet old border flowers, from tall Lilies to dwarf Hepaticas, though very few persons indeed have any idea of the numbers of beautiful subjects of every clime, which in this way we may gather together.

It is to furnish this information and to show how the materials should be used, that the present little volume was written and published. Hundreds of the finest hardy flowers will be found to thrive better when grown under the shelter of others than in the trim border, forming the most delightful combinations of form and colour, while the raggedness of the old mixed border, one of its worst

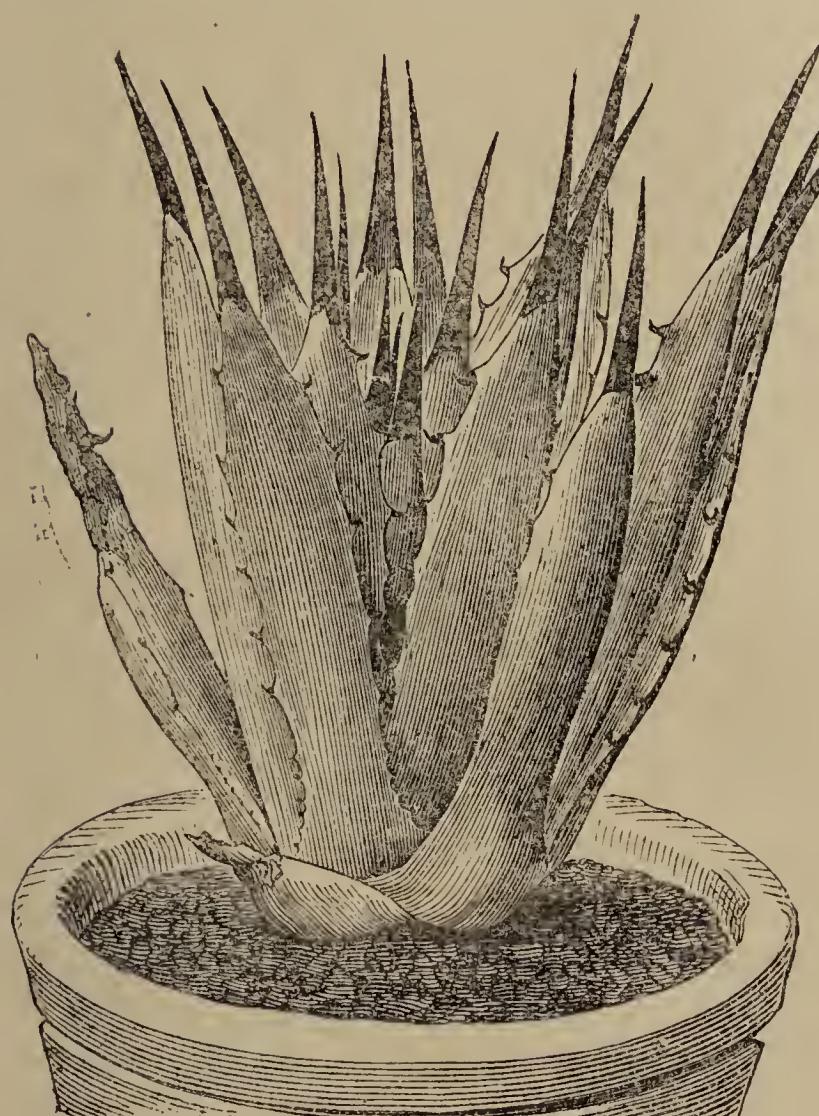


FIG. 2.

features, will thus be altogether avoided. Thus Lilies dotted through thickets of Rhododendrons will not only have a better appearance than isolated masses, but as they pass out of flower they will not be noticed as eyesores, as they would be in unrelieved tufts in the borders; and, moreover, the soil for the Rhododendrons would be exactly what would suit them, and further their development. In this way great numbers of choice hardy flowers could be better accommodated than in any mixed border, while a constant variety would be springing up to vary and beautify the scene. Then there are the charming Spring Bulbs, subjects of exquisite beauty, and as yet not half utilized. Shrubbery walks and grassy glades not too frequently mown are just the places where these, such as Snowdrop, Crocus, Scilla, Anemone, and even Narcissus, can be introduced with good effect.

In gardening of this sort, nearly all the trouble would be over with the first planting, and labour and skill could be successively devoted to other parts of the grounds. All that the covered borders would require would be an occasional weeding or thinning, &c., and perhaps, in the case of the more select spots, a little top-dressing with fine soil. Here and there, between and amongst the plants, such things as Forget-Me-Nots and Violets, Snowdrops and Primroses, might be scattered about so as to lend the borders a floral interest even at the dullest seasons; and thus we should be delivered from digging and dreariness, and see our ugly borders alive with exquisite plants. The chief rule should be never to show the naked earth; carpet or clothe it with dwarf subjects, and then allow the taller ones to rise in their own wild way through the turf or spray.

Having thus explained what he means by a wild garden, Mr. Robinson proceeds to give in Part II., under their natural families, a descriptive enumeration of hardy exotic plants, suitable for naturalization in the situations alluded to; while in Part III. he gives selections of plants for naturalization in various positions; and in different soils—one of the most practically useful sections of the book. Part IV. is devoted to the British Garden of Wild Flowers, and consists of a gossipy run through the British Flora, indicating the plants most suitable for the purpose.

As an attempt to impart a higher tone to our flower and pleasure gardens by disconcerting to some extent the vulgar craving for mere colour effect, and by stimulating the cultivator to place a higher value upon beauty of form, upon happy association, and even upon the beauty of simplicity, this effort of the author well deserves our commendation.—T. M.

NOVELTIES, ETC., AT FLOWER SHOWS.

HERE is no lack of interest about the meetings of the Royal Horticultural Society, and the doings of the Floral Committee, notwithstanding that winter is rapidly advancing. The weather has been fine and open, and consequently the blooming time for plants has been prolonged beyond the usual limits. The meeting of the Committee on September 21 brought together

several important novelties ; among them a few good new bedding foliage plants. Messrs. E. G. Henderson and Son received First-Class Certificates for *Alternanthera magnifica*, a good large-growing form of the well-known *A. paronychioides*, with plenty of orange-red about the foliage, which has been used with considerable effect this season by Mr. Gibson, at Battersea Park ; and for *Thymus citriodorus aureus*, a golden-leaved Lemon Thyme, that keeps its colour well, and is a thoroughly good bedding plant. It is largely used by Mr. Vertegans in both the summer and winter decoration of the Promenade Gardens at Great Malvern with excellent effect. In addition, Messrs. E. G. Henderson and Son received the same award for *Cineraria asplenifolia*, with silvery-grey leaves, that promises to be very useful in the flower garden.

The new *Gladiolus John Standish*, shown by Mr. Douglas, of Loxford Hall, is a worthy memorial of that successful cultivator ; the flowers have a pale blush ground, and the throat is flamed with bright magenta ; of fine form, large size, and forming a grand exhibition spike, it promises to become a leading flower when distributed ; it was awarded a First-Class Certificate. *Pelargonium Mrs. John Lee*, of the gold and bronze section, is one of the brightest-looking and most promising shown this season ; it was exhibited by Messrs. J. and C. Lee ; the leaves are finely marked, and the habit just what is required in a bedding Pelargonium ; it also was awarded a First-Class Certificate. The same award was made to *Verbena Peter William*, one of Mr. Eckford's fine seedlings ; the colour intense scarlet, with a large white eye, fine pip and truss.

The following new *Dahlias* received First-Class Certificates :—*Annie Hobbs*, a good-looking white self, with fine floret and centre, promising to be very useful ; from Mr. Hobbs, Easton, Bristol ; *Gem of the Season*, claret rose, the tips of the petals gold, regarded as an improvement on Stafford's Gem, shown by Mr. G. Harris, Orpington ; and *Mary Keynes*, a pretty flower, having a pale ground, heavily tipped with bright deep rose, from Mr. Keynes. Second-Class Certificates were awarded to *Victory* (Keynes), deep purple, flushed with purple ; *James Cocker* (Keynes), a large, somewhat flat and rather coarse deep shaded crimson flower ; and *Flossy Williams* (Keynes), blush, suffused with lilac and flaked with purple, a pretty and promising fancy.

At the meeting of the Committee on October 5 (which was one of the most interesting meetings held during the year), some more novelties came into notice. The dwarf, silvery-leaved, compact-growing *Senecio argenteus*, from the Pyrenees, received a First-Class Certificate ; and a Second-Class Certificate was awarded to *Aster longifolius var.*, a dwarfish, round-headed, densely-flowered Michaelmas Daisy, with flowers of a pinkish-lilac hue ; both these came from Messrs. Backhouse and Son. *Wigandia imperialis*, exhibited by Messrs. E. G. Henderson and Son, and awarded a First-Class Certificate, is a fine companion to that noble sub-tropical plant, *Wigandia caracasana*, from which, however, it is sufficiently distinct in the shape of its leaves and their clothing. *Variegated Zonal Pelar-*

gonium Miss Goring, of good habit, and nicely coloured, a good, bright-looking variety, from the same exhibitors, received a similar award. A Second-Class Certificate was awarded to *Variegated Ivy-Leaved Pelargonium Golden Queen*, a strong-growing sort, the leaves edged with yellow, distinct, and promising to be useful ; this came from Mr. J. Parker, Victoria Nursery, Rugby.

The following Dahlias received First-Class Certificates :—*Monarch* (Rawlings), a grand flower, of a rich deep velvety maroon ground, regularly tipped with fiery crimson ; fine florets, substance, and outline. *Yellow Standard* (Parker), a large and somewhat rough yellow flower, quite unworthy the award as shown. A Second-Class Certificate to *Prince Imperial* (Perry), of a dull orange colour, the centre flushed with rose ; the flowers had got some injury in the journey, and looked rough.

Mr. William Paul had a beautiful collection of *Tea Roses in pots*, exquisitely flowered. This was the third time these plants had produced blooms this season. Talk of perpetual roses, nothing in the way of bloom could be more perpetual than this ! They were well grown, beautifully flowered, and so fresh and charming that they took one back to spring, notwithstanding it was a dull, cold, autumnal day.—R. D.

GARDEN GOSSIP.

THE promoters of the *Fungus Show* at South Kensington on October 5 are doing good service by their annual attempt to familiarize the public eye with the appearance of the most prevalent edible kinds of Fungi as compared with those which possess poisonous properties. There can be no doubt that a very great quantity of good wholesome food in the shape of Fungi is annually wasted, because of the uncertainty which people in general feel as to the possibility of distinguishing the good from the bad, the wholesome from the deleterious. The "mycologists tell us," remarks the *Gardeners' Chronicle*, "and we implicitly believe them, that tons of valuable Fungi waste their nutritive qualities in the untrodden woods from want of sufficient knowledge on the part of those to whom a substantial meal of any kind would be a boon. No doubt this is much to be lamented, but we must own ourselves sceptical as to any alteration in this state of things being effected, till gardeners have found out what to cultivate, and how to grow them. We appreciate the delicacy of the Giant Puff Ball, we relish the Vegetable Beefsteak, we delight in Champignons, Morels, Truffles, and some others—when we can get them ; but we have no faith in their ever being anything but casual delicacies, very good on emergencies, but useless, so far as food is concerned, till they can be as much under the dominion of the gardener's art, as is the common Mushroom." Three collections were shown. In that from Mr. English, the following edible kinds were included :—*Agaricus arvensis*, the Horse Mushroom ; *Marasmius Oreades*, the Champignon ; *Agaricus rachodes* and *procerus* ; *Boletus scaber* ; *Hydnus repandum*, and others. Mr. Worthington G. Smith's edible kinds included *Agaricus procerus*, the Parasol Agaric ; *Agaricus erubescens*, *Lactarius deliciosus*, *Boletus scaber* and *edulis* ; *Fistulina Hepatica*, the Beefsteak Fungus ; *A. pantherinus*, *A. prunulus*, *A. grammopodium*, &c. Mr. Hoyle, of Reading, showed among edible kinds, *Agaricus nebularis*, *Russula heterophylla*, *Agaricus arvensis*, *A. melleus* (shown in other collections among the poisonous kinds), *Cantharellus aurantiacus*, *Helvella esculenta*, *Morchella esculenta*, *Lactarius deliciosus*, and others.

— It was reported at a meeting of subscribers to the *Veitch Memorial* that the amount of subscriptions had reached the sum of £1,012 12s. 9d. ; that the expenses of advertising, postage, &c., had been £121 14s. 5d., leaving a nett

balance of £890 18s. 4d. An admirable full-length portrait of the late Mr. Veitch has been presented by Robert Crawshay, Esq. Adopting the recommendations of the Central Committee, the meeting determined that the money in hand should be invested, and the interest devoted to Veitch Memorial Prizes. The following gentlemen were named as trustees:—G. F. Wilson, Esq., the Treasurer; and Thomas Moore, Esq., the Secretary to the Fund; Harry J. Veitch, Esq., representing Mr. Veitch's family; Dr. Hogg, representing Amateur Gardeners; Mr. Z. Stevens, representing the Practical Gardeners of England; Mr. W. Thomson, representing Scotland; and Dr. D. Moore, representing Ireland.

— *The Idesia polygama*, a Flacourtiaceous plant, which bears the name of *Polycarpa Maximowiczii* in the French gardens, is described as a noble and perfectly hardy deciduous tree, with alternate cordiform serrated shining green leaves, with red veins above, and glaucous beneath the blade, 8 in. to 12 in. across, and the petioles red, 8 in. to 1 ft. long. The flowers come in long compound racemes, and are succeeded by very numerous orange-coloured berries, which are reported to be edible. If perfectly hardy, as it is said to be, it must form a magnificent tree, on account of its large size, and the breadth of its foliage.

— THERE is a beautiful black Plum which comes into use after Damsons are past, and fully twice their size. This bears the name of *Sandall's Plum*. It forms trees 20 ft. to 40 ft. high, with spreading heads, every twig as thickly set with fruit as the berries on a bunch of grapes. It is very hardy, and one of the very latest, supplying Plums for cooking, &c., when wanted, until November! The fruit is of medium size, roundish, of a beautiful jet-black colour, with a thick bloom; flesh reddish, clinging slightly to the stone, moderately juicy, with a smack of the Sloe flavour. This little-known Plum was raised sixty or seventy years since by the late Mr. Sandall, a market gardener, at Fulham. It is said to be a sure bearer, surpassed by Prince of Wales, Victoria, and Mitchelson's (the last especially); but it is at least eight or nine years before it begins to bear, though after that time it is a prodigious cropper about once in three years. Any one having half-a-dozen sorts cannot do wrong in growing Sandall's, but for a small garden, where there is only room for one Plum, Mitchelson's is to be preferred.

— THE following mode of laying *Tar Pavements*, recommended in the *Builder*, has been found completely successful:—For Carriage-ways: a layer of dry brick rubbish, 8 in. thick, well rammed (if a gravel foundation, this need not be used). Kentish ragstone, or the chippings from granite, are the best materials. The stone for the lower bed should be broken to pass through a sieve of 3-in. mesh, to be well coated with hot Stockholm tar, to be laid 6 in. thick, and well rolled. The next bed is to be broken to pass a 1½-in. mesh, to be laid 2½ in. thick, and well rolled. When nearly dry, broken gypsum to be scattered over it, and well rolled; this gives a bright look to the pavement. For Footways: brick rubbish, 5 in. thick; lower bed, 4 in. thick; next bed, 2 in. thick; and gypsum as before. This pavement may be seen at the Royal Arsenal, Woolwich.

— PRESERVED *Kidney Beans* for winter use are not at all to be despised; and if gathered just before frost is apprehended, a great deal of useful food may thus be saved. The Beans are sliced as for the table, and then salted and pressed into either a small wooden barrel or large stone jar. In every family of any extent in Germany large quantities are thus preserved. When they are abundant and cheap, the lady of the house buys them wholesale, and invites her lady friends, young and old, to help her to slice the beans. Towards evening the young men coming from business join the party, resharpen the knives, make themselves generally useful, and after a good deal of flirtation, the day terminates with a dance. The work is all done in one afternoon. Directly a lot is ready, the cook proceeds to salt as follows:—She puts a thin layer of salt on the bottom of the barrel or jar, and upon this a layer of about 5 in. of sliced Kidney Beans; upon this she sprinkles salt, presses down the beans as much as she can, then places a fresh layer of beans and some more salt; and in this way the barrel or jar is filled. A heavy weight—say a two-stones weight, or 1 cwt.—may be beneficially placed upon two or three layers of sliced beans and salt for, say a quarter of an hour, before more beans are packed. In this way, a large quantity of beans will go into a comparatively small space, and the tighter the Beans are packed the better they will keep. When all the beans have been sliced, and served in this

manner, a clean linen cloth, or a piece of board, is put upon them, and kept pressed down by a heavy stone or iron weight. The beans and salt in the course of a day or two draw water, so that the whole becomes covered with brine. The jar or barrel should be kept in a cellar or cold pantry. When the Beans are wanted for the table, the surface layer, which generally gets a little mouldy after several months' keeping, is wiped with a clean towel, and the beans soaked in cold water to remove the excess of salt, and they are finally cooked like fresh Kidney Beans. The only care necessary to be taken with the beans is to keep always a good weight upon them in the barrel or jar in which they are preserved, so that always a little brine—say a quarter of an inch in depth, or more—stands upon them, to the total exclusion of the air. In this way Kidney Beans may be kept for more than a year.

— *THE Transplantation of Bracken* is not always done with success. A correspondent of the *Gardeners' Chronicle* recommends the following plan:—"Go with a horse and cart and a sharp spade into a thicket of Bracken; cut out a cart-load in large spadefuls, say a foot square and as much deep; cart it to the place you wish it to grow in, empty it out, and spread it about as if the pieces were large clods of earth, turning any of the largest inverted pieces the right way up, and spreading the new material about 6 in. thick, without any particular care of root or stem, and next year you will have a crop of Bracken that will speedily become a thicket. Singular though it seems, this rough mode has been far more successful with me than the most careful digging up and replanting of the roots and stems."

— **O**NE of the necessaries of decorative gardening is green *Moss*. Fresh Moss is not always easily obtainable, and even when it can be had, it has this objection for in-door use, that it contains innumerable eggs of insects, and thus brings disagreeable visitors into the apartments. Prepared moss has generally a dull bluish-green colour, not at all pleasing. The following recipe for preparing Moss with slight alteration of appearance is copied from a French chemical journal:—Dissolve 1 grain of nitric acid, and about 15 grains of indigo, in 2 quarts of water; tie the moss up in small parcels; throw these into the solution while boiling, and leave them in for a minute; afterwards dry them in the open air, and the moss will last for an almost indefinite time without alteration.

— *THE French* are specially fond of the *Chrysanthemum frutescens*, a large white-flowered greenhouse bush, which they call Anthémis. In the early summer, it is seen everywhere, in windows, in halls, in flower-beds, on restaurant-tables, and its similitude in almost every young lady's bonnet. If it were not effective, it would not be permitted to grace the latter situation. At the Paris exhibition last spring were some gigantic plants, from 4 ft. to 5 ft. across, and trained dome fashion; they were very handsome and novel, a trifle too regular, perhaps, but that would be thought no defect by some.

— *THE Messrs. Ottolander and Son* send us *Quercus nobilis*, a seedling Oak, "coming from *Q. Robur nigra*, crossed with the *Q. americana*. The growth is much like that of *Q. alba*, but it is more robust, and very hardy, the leaves larger, and the young ones of a fine deep red." It is certainly a very fine Oak, with large, coriaceous, glossy leaves, 9 in. long and 5 in. broad, wider towards the blunt apex, where they are slightly and bluntly sinuate-lobate.

— *THE Brussels Bouquetistes* use the flowers of *Smilacina bifolia* as a substitute for those of *Hoteia japonica*. Judging from the quantities to be seen at the proper season in the flower-markets, this plant must be as plentiful wild near Brussels as it is rare in England.

— **W**E regret to hear that, in consequence of bodily infirmities from which there is no hope of relief, *Mr. G. Lightbody* has been compelled to give up the cultivation of *Tulips*, and wishes to dispose of his stock. They are all fine sorts, so that here is a good opening for any one wishing to take up the Tulip fancy. The collection includes some fine seedlings.



J.L. Macfarlane Del. et Zinco.

F. Waller Imp. 18 Hatton Garden

Gloxinia

NEW VARIETIES OF GLOXINIA.

WITH AN ILLUSTRATION.

FEW genera of ornamental plants are more useful in their way for general decorative purposes than the *Gloxinia*, which to facility of culture adds the recommendations of convenience of size, variety of form and tint, profuseness of flowers, and a velvety richness of colouring which is almost unapproached. Need we wonder, then, that they are largely grown both for house decoration and for exhibition—though not much encouraged at the great London shows; and, moreover, that the varieties are very numerous.

Their culture is so simple and well understood, that we need not here devote space to explain it. Suffice it, then, to say that the variety SCARLET GEM (fig. 1) is one of the richest and brightest flowers we have ever seen, and one which unanimously won a first-class award when exhibited last spring. The colour at the deepest parts is of a rich bright velvety tint of carmine scarlet, beautifully blended with a soft violaceous hue at the throat. This novelty was shown by Mr. Williams, of Holloway. The other flowers represented are NEGRO (fig. 2), a richly shaded violet purple, raised last spring by the Messrs. Veitch and Sons, amongst many others of great beauty and merit; and MADEMOISELLE JEANNE PREVOST, a French variety of recent introduction, of a deep rosy lilac tint, beautifully spotted and rayed with violet in the mouth and throat. As the figures show, they all belong to the erect-flowered section of *Gloxinias*.—M.

THE APRICOT AS A STANDARD OR BUSH TREE.

HITHERTO the cultivation of the Apricot as a standard has been of rare occurrence, even in the southern counties, where the fruit is apt to be deteriorated in quality from exposure on south walls, and rarely attains that luscious richness of flavour which fruit obtained from standards generally possesses. Why, then, are bush or standard trees not more generally grown in favourable localities? If a crop can be relied on once in three years, without protection or any care whatever, assuredly with the fostering care of the cultivator, aided by protection from frost, we might expect to be rewarded by an average crop of fruit yearly. In corroboration of this, I may mention that in this neighbourhood two heavy crops have been secured from standard trees during the last three years. Of one tree in particular, a remarkably fine specimen of the Moor Park, and of perfect form, with branches extending 17 yards in diameter, the produce has this year exceeded five pots, equivalent to six bushels imperial measure. The pot is the local measure by which all fruit is sold in this neighbourhood, but there is no definite or recognized weight for a pot. I am told that this tree has seldom failed to produce fruit during the last sixteen years, while, as an average, the crop has once in three years been immense.

This year the produce of younger trees has been profuse, and the fruit of
3RD SERIES.—III.

fine quality, a degree of success not confined to this neighbourhood alone, for I am pleased to see other instances quoted in which the fruiting of the Apricot as a standard has been equally satisfactory. Thus, at Evesham, a Breda Apricot has produced nine bushels of fruit this year. Such successes as these should assuredly lead to more extended culture; for notwithstanding that the Apricot tree is somewhat tender, being a native of "the land of the sun," yet it is so far acclimatized as to be rarely injured by frost. True, the blossom-buds are susceptible of injury, as they are put forth early enough to be frequently subjected to several degrees of frost. Hence the necessity of carefully protecting them; and to facilitate that operation, it is essential that the trees should be trained as low bushes, espaliers, or in such other form as may suggest itself to the cultivator, having in view the one object of accessibility.

The soil best suited to the Apricot is a calcareous loam or sand, of sound texture, two feet deep. It is of primary importance in preparing the sites for standard trees, that the subsoil should be perfectly drained, and the position slightly raised so as to elevate the stems above the ground-level. This will be found indispensable to success in places where the ground is at all wet. Moreover, the digging of the surface within the limits of the tree should be studiously avoided, as not only does such a practice destroy the surface-roots, but, more particularly in the case of standard trees, it has a tendency to retard fructification. Some of the finest and healthiest trees I have seen have had their roots wholly under gravel walks, or pitched over with stones. I may also mention that the large Moor Park tree, previously alluded to, has not had the soil about it disturbed for many years, the surface being paved over with oyster-shells. The tree is growing in a friable loam, resting on a stratum of broken sandstone rock of considerable depth. Rich, deep clay soils are to be avoided, since they induce vigorous growth and imperfectly-ripened wood, the principal cause of the unfruitfulness often complained of in Apricot trees. When such soils have to be dealt with, a large per-cent of old mortar rubbish may be added to it with the best results.

During the growing season, the trees ought to be frequently examined, and all elongated shoots pinched back, so as to maintain, as far as possible, an equal distribution of wood, which obviates the necessity for the inordinate use of the pruning-knife, which is one of the chief causes of gumming and the premature decaying of branches,—evils which occur less frequently in standard trees than in trees trained against walls.

The insect most injurious to Apricot foliage is the caterpillar of the red-bar moth, the eggs of which go on hatching from the middle of May until mid-summer. Their presence is readily detected by the rolling-up of the leaves. This destructive pest must at once be eradicated, and the only remedy I know of is picking and squeezing every leaf which is rolled up. One or two such careful inspections will usually clear the trees for the season.

The Apricot is also subject to be attacked by mildew, and sulphur has been generally applied as a remedy, but with somewhat uncertain results. The most efficacious remedy for this insidious and troublesome disease with which I am acquainted was found out, and its efficacy proved on a large scale, in the nurseries of Mr. Smith, of Worcester. The Roses in these nurseries were attacked by mildew, which was so generally prevalent last summer; and after repeated trials of all the prescribed remedies without the slightest effect, it was discovered that the best soft soap, in the proportion of one pound to three gallons of cold water, is most effectual. The soap is whisked until it is dissolved, and immediately applied to the trees; and thus a plot of six acres, planted with Rose trees, was gone over, and perfectly freed from this most formidable assailant, at the trifling cost of 4d. for the three gallons of liquid used. The preparation was also applied to *Picea Nordmanniana*, and other plants infested with mildew, with equally good results. It must be noted that the soap is to be dissolved in *cold* water, as it loses its effect when mixed in hot water. Further, if it is allowed to stand for any length of time after being mixed, it is perfectly useless. I should observe that it is requisite to test the strength and quality of the soap on a single plant previous to using it on an extensive scale, as soaps are found to vary much in quality, and often act injuriously on the foliage, but the above may be taken generally as the proper proportions. The best soft soap only should be used.—
G. WESTLAND, *Witley Court.*

ADIANTUM RUBELLUM.

BOLIVIA is the native country of this pretty dwarf Maidenhair Fern, one of several South American species, which the Messrs. Veitch and Sons have had the good fortune to introduce to our gardens within the last few years. It is one of a set belonging to the *Capillus-Veneris* group, bearing more or less resemblance to *A. Capillus-Veneris*, *A. cuneatum*, and *A. concinnum*, the several forms of which, though not easy of definition, are obviously distinct to the eye, and are welcome additions to our garden species.

To this set, besides *A. rubellum*, belong *A. tinctum*, *A. colpodes*, and *A. decorum*, all plants of ornamental character. *A. rubellum* itself is the dwarfest of the series; its fronds rarely exceeding six or eight inches in length, and growing up in a dense mass. The young fronds come up rosy red, like those of *A. tinctum* and *A. colpodes*, and owing to the crowded habit of growth and the profusion of them constantly produced, the plant is, under good management, always more or less embellished with the roseate tint which has suggested the name. The fronds are of triangular-ovate form, 4 in. to 5 in. long, quite smooth, and attached to glossy stipites of about the same length. They are bipinnately divided, the ultimate pinnules being small, wedge-shaped, tolerably uniform in size, and deeply lobed at the margin, with the lobes indistinctly serrated; each of the fertile lobes is split, but with a closed sinus; and round the base of this the

nearly circular sorus, with its membranaceous entire indusium, is developed. The wedge-shaped pinnules and smaller size distinguish it from *A. tinctum*, to which it is most nearly related.

A woodcut of *A. rubellum* was, by oversight, given at p. 250, with the description of *A. decorum*, of which latter very ornamental plant a figure is here subjoined.—THOMAS MOORE, *Chelsea*.



GESNERA ELLIPTICA.

AS I was reading Mr. Bennett's excellent article on the Tuberose (p. 20), it occurred to me that this *Gesnera* would be a fine thing to succeed it, on account of its fragrance. It is, I must confess, rather lanky in growth; but then it is a plant of very easy culture, requiring but little heat, although a stove plant. My very simple method of growing it is as follows:—About the 1st of March, I take the pots containing the tubers from under the stage in the greenhouse, where they have lain on their sides since the autumn, after they had done flowering. The tubers are shaken out and repotted, three into a 24-sized pot, in a soil consisting of about two-thirds peat and one-third

loam, with the addition of silver-sand. They should be potted firmly, and the pots not filled too full, as the tubers grow very fast, and raise up the soil. After potting, they are put into a viney just started, where they remain till May or June, when they may be removed to the greenhouse. Instead of stopping them, we train them round three or four sticks stuck in near the edge of the pot, which dwarfs them considerably. When they are in flower, they may be removed to the conservatory. We find them especially useful for the centre of a basket of flowers; one pot is quite sufficient for a room at one time. After they have done flowering, it is only necessary to save two or three pots, as each will contain several tubers as large as good-sized potatos, and very much like them.

This *Gesnera*, the Tuberose, and the *Gardenia*, of which there are several kinds, are some of the most valuable sweet-scented plants we have for decorative purposes. The subject of this paper is sometimes known in gardens under the names of *G. tuberosa*, *G. bulbosa*, and *G. longiflora*.—WILLIAM PLESTER, Elsenham Hall Gardens.

THE GARDEN IVIES.

OW that winter is approaching, we naturally turn to Evergreen Trees and Shrubs, to aid us in keeping up the beauty and interest of our gardens.  The summer flowers and the summer leaves are alike gone, but by means of Evergreens the garden may in winter be made as interesting and beautiful in its way as it is in spring or summer. Each season has its natural and distinctive features, the embodiment of which should be a pleasing task to the skilful gardener.

The Ivy is one of the most important of hardy Evergreens, and to this I will now confine my remarks. It is no new favourite, but is alike remarkable for its antiquity, its beauty, and its pleasant associations. Dr. Seemann, who has made a special study of the *Hederaceæ*, brings all the known forms of Ivy under three species:—*Hedera Helix*, the European Ivy; *H. canariensis*, the African Ivy; *H. colchica* (*Rægneriana*), the Asiatic Ivy. In our country *H. Helix* abounds both naturally and by the hand of the planter; and I conceive that there are few who cannot look back with pleasurable emotions on some old church, ruin, or “ivy-mantled tower,” the picturesque forms of which remain indelibly fixed on the memory. So plentiful is it, that one can scarcely take a walk or drive without meeting with the various forms covering banks or park palings, and ascending trees to a great height, the topmost shoots often assuming a shrubby form.

From the cultural point of view the Ivy is valuable as an evergreen climbing plant, on account of its free, rapid, and accommodating growth. It can scarcely be dispensed with in suburban gardens; and even in large towns it generally thrives well, suffering from the smoke less than most evergreens. For covering walls, fences, trees, and rockwork, for screens when supported by lattice, for pillars, edgings of beds, and arches in flower gardens, it is alike suitable.

The Ivy may be grown in three separate ways —(1), as pillars ; (2), to cover old roots, laid on the ground to form a screen ; and (3), in pots. Pillars of Ivy form beautiful objects, especially in the winter season. Those who have seen the gardens at Elvaston in winter will no doubt remember the pleasing effect of the masses of golden Ivy which abound there. When planted and trained on rockwork or old trees, it is curious and interesting to watch the shoots creeping and clinging to the surface, now losing themselves in the recesses, then emerging and spreading to the light their broad masses of beautiful leaves of green, gold, or silver. A well-kept mass of Ivy, whether on wall, or tree, or rock, is in winter a beautiful sight. When grown in tubs or pots as low pyramids, the varieties of this plant are also extremely useful for garden decoration. Of the many variegated kinds some only are completely happy as pillar plants, at least such is my experience ; but the most delicate are beautiful in pots, and even against walls, and are quite worthy of such positions.

Further, the Ivy is not only valuable as a climbing and creeping plant, but also as an evergreen shrub. The tree or bush forms which it assumes, and of which there are several, are first-class front-row evergreens for beds and borders. A little pruning keeps them as compact as Aucubas and Laurustines, and in the green, gold, and silver leaves, and the black and yellow berries, there is infinite variety and beauty. The sweetness of the flowers, too, must not be forgotten.

The following hints as to making selections for special purposes may be useful :—For covering large spaces quickly, I would specially recommend the following :—*pennsylvanica*, *crenata*, *canariensis*, *canariensis nova*, *algeriensis*, and *colchica*, among the green-leaved kinds ; *marginata minor*, *marginata robusta*, *marginata argentea*, *canariensis latifolia maculata*, *algeriensis variegata*, and *rhombea variegata*, among silver-leaved forms ; and *Helix foliis aureis*, *palmata aurea*, *canariensis aurea maculata*, and *canariensis foliis aureis*, among gold-leaved varieties. Breadth or masses of any one of these three colours may be obtained by the use of the above varieties. For low walls or fences, basket handles, and margins of beds, the best green Ivies are—*Helix*, *Glymii*, *taurica*, and *walthamensis* ; the best silver-leaved kinds are—*marginata elegans*, *marginata pulchella*, *marginata elegantissima*, *minor marmorata*, *rhombea variegata*, *japonica* ; the best gold-leaved varieties are—*Helix foliis aureis*, *marginata canescens*, *canariensis aurea maculata*. All the tree or bush varieties are worthy of a place as front-row evergreens. I append a descriptive and classified list of the best sorts of Ivies.

§ HEDERA HELIX.—EUROPEAN Ivy.

* Plants of climbing habit.

† Leaves green.

- H. Helix*.—Leaves small, dark green. Growth rapid.
H. Helix palmata.—Leaves dark green, of medium size, very broad, deeply cleft ; veins prominent. Growth very vigorous.
H. Helix crenata.—Leaves green, broad, regularly cleft ; the veins very conspicuous, similar to but larger than those of *H. Helix palmata*. Growth free and rapid.
H. Helix digitata.—Leaves dark green, long and pointed, broad at the base, deeply cleft. Growth rapid, shoots less numerous than in most others.
H. Helix digitata nova.—Leaves dark green, of medium size, deeply cut. Growth rapid.

H. Helix pennsylvanica.—Leaves wholly green, large, deeply cleft; veins prominent. Growth free.

H. Helix chrysocarpa.—Leaves dark green, small. Growth rapid. Berries yellow.

H. Helix sagittifolia.—Leaves dark green, of medium size, broad at the base, long, narrow, and pointed at the apex. Very distinct.

H. Helix Glymii.—Leaves pale green, of medium size, almost entire; very glossy-looking, as if varnished. Growth very rapid, forming dense masses of foliage.

H. Helix donerailensis minor.—Leaves dark green, small, deeply cleft. Growth rapid; shoots few and slender. Very distinct.

H. Helix taurica.—Leaves dark green, of medium size. Growth rapid.

H. Helix walthamensis.—Leaves dark green, very small. Growth rapid, shoots very slender. The prettiest of all the small green-leaved kinds.

†† Leaves variegated with white.

H. Helix foliis argenteis.—Leaves green, broadly margined with white; small. Growth moderate. Very showy.

H. Helix Cavendishii.—Leaves green, well margined with white; small. Growth moderate.

H. Helix minor marmorata.—Leaves green, beautifully marbled with white; small. Growth rapid. Exceedingly pretty.

H. Helix marginata major.—Leaves green, of medium size, broadly margined with yellowish-white; berries freely. Growth rapid. One of the best.

H. Helix marginata elegans.—Similar to the preceding in general appearance, but the leaves are larger and narrower at the base. Growth moderate.

H. Helix marginata pulchella.—Leaves green, small, broadly margined with white. Growth moderate. Very beautiful.

H. Helix marginata robusta.—Leaves green, large, margined with white. Growth free and rapid. One of the best.

H. Helix marginata argentea.—Leaves green, large, well margined with white. Of free, rapid growth. One of the best.

H. Helix marginata elegantissima.—Leaves green, broadly margined with white; very showy. Growth moderate.

††† Leaves variegated with yellow.

H. Helix foliis aureis.—Leaves green and gold; some wholly of each colour, others finely blotched. Growth rapid. Very beautiful.

H. Helix palmata aurea.—Similar to *H. Helix palmata* in general character, but having the leaves occasionally clouded with gold.

H. Helix marginata canescens.—Leaves green, long and narrow, broadly edged with gold.

** Plants of shrubby or bushy habit.

† Leaves green.

H. Helix arborescens.—Leaves dark green, long and narrow; forms a close, round, evergreen shrub; well set with dark purple berries in winter.

H. Helix arborescens baccata lutea.—Leaves green, narrow-pointed; of the compact growth of the preceding, and well covered with yellow berries.

†† Leaves variegated with white and yellow.

H. Helix arborescens albo-lutea.—Leaves green, well margined with gold and silver; large. One of the most beautiful.

††† Leaves variegated with yellow.

H. Helix arborescens foliis aureis.—Leaves dark green, finely blotched with gold, long, narrow. Grows and bears berries freely. Very beautiful.

§ 2. HEDERA CANARIENSIS.—AFRICAN IVY.

* Plants of climbing habit.

† Leaves green.

H. canariensis.—Leaves dark green, large. Growth very rapid. Bears berries freely.

H. canariensis nova.—Leaves much larger and of a paler green than the type, also of more rapid growth. This and *H. colchica* (*Rægneriana*) are the best of the green-leaved kinds for covering large spaces quickly.

H. algeriensis.—Leaves pale green, large, entire. A very handsome sort, of rapid growth.

†† Leaves variegated with white.

H. canariensis latifolia maculata.—Leaves green, marbled with creamy white; large. Growth rapid.

H. algeriensis variegata.—Leaves green, broadly margined with white; very large. Growth rapid. One of the handsomest.

††† Leaves variegated with yellow.

H. canariensis foliis aureis.—Leaves large, some entirely green, some entirely yellow, others green blotched with gold. Growth vigorous. Very handsome.

H. canariensis aureo-maculata.—Leaves sometimes green, but usually green finely clouded with yellow; large. Growth free and rapid. One of the most beautiful.

** Plants of shrubby or bushy habit.

H. canariensis arborescens.—Leaves dark green, very large, broad, and almost entire; berries freely.

§ 3. *HEDERA COLCHICA*.—ASIATIC IVY.

* Plants of climbing habit.

† Leaves green.

H. colchica (Rægneriana).—Leaves dark green, large, entire, thick, and leathery. One of the handsomest.

†† Leaves variegated with white.

H. rhombea variegata.—Leaves dark green, broad and smooth, slightly but regularly margined with white. Very distinct and elegant.

H. japonica.—Leaves green, clearly and regularly margined with white; small. Very pretty, producing dense masses of foliage.

** Plants of shrubby or bushy habit.

H. colchica arborescens.—Similar to *H. colchica* in general character of leaves; but the plant, instead of climbing, rapidly forms a stout round bush, well set with berries.

—WILLIAM PAUL, *Paul's Nurseries, Waltham Cross*.

THE HOLLYHOCK.

HE offer of certain prizes for Hollyhocks, at the Royal Horticultural Society's meeting on August 17, had the effect of bringing together some very excellent examples, of which the following brief account may be useful to those readers who are interested in the growth of this fine late summer flower.

The fine collection of cut blooms staged by Mr. W. Chater, of Saffron Walden, occupied the premier position, and was of special interest to Hollyhock-growers, as containing some fine new varieties raised by him to be sent out in the coming autumn. These novelties consisted of:—*Alfred Chater*, pale mottled rose, with a deeper flush of colour in the centre of the flower; extra fine quality. *Conquest*, very rich bright crimson, fine quality; also highly effective as a spike. *Marvellous*, orange-buff, fine and full; also very fine as a spike. *Champion*, dull reddish crimson, a fine and full flower. *Bullion*, bright apricot-yellow, a fine, close, full flower, and an effective spike. *Eclipse*, pure satiny rose, a charming flower of fine quality, equally attractive as a spike. *Talisman*, pale sulphur, very distinctly margined with rose, a beautiful and novel flower of fine quality.

The new flowers distributed by Mr. Chater last autumn were well represented on this occasion; especially worthy of note were—*Bijou*, scarlet, suffused with buff, very fine and striking. *Constance*, a beautiful shade of delicate pale flesh, and in its fine finish quite justifying the award of a First-class Certificate by the Floral Committee. *Jewel*, bright pure yellow, showing a great improvement in point of substance in a yellow flower. *Leviathan*, bright reddish rose, very fine. *Perfection*, delicate silvery flesh, a beautiful soft hue of colour, considered by Mr. Chater to be one of the finest Hollyhocks he has ever raised. *Scarlet Gem*, a vivid hue of bright scarlet, fine quality, and forming a bold and effective spike.

Of older flowers shown in capital condition by Mr. Chater, by Messrs. Downie Laird and Laing, and by Mr. Minchin, the following were particularly noticeable:

—*Carnosa*, flesh, flushed with rose, shown also as a good spike. *Carus Chater*, reddish crimson, very fine. *Crimson King*, deep cherry-red, fine quality. *Fascination*, rosy lilac, with a slight covering of silver, a very beautiful and novel flower. *Fanny Chater*, rosy carmine, very fine. *Fred Chater*, pale yellow, shown also as a spike in fine condition. *Joy*, dark base, the edges of the flowers tinted with carmine, small, but very pretty. *Junia*, pale, primrose suffused and stained with purple, very fine and novel in colour. *Mrs. Hastie*, deep pink, a fine and full flower. *King*, orange-buff, fine quality. *Leah*, golden yellow, very fine. *Mrs. Downie*, delicate soft salmon-rose, forms a grand spike. *Midnight*, deep glossy maroon, small in size as shown, but a very fine hue of colour. *Mochanna*, white flushed on the edge with pale rose, small, but of fine quality. *Miss Lizzie King*, yellow, forms a good spike. *Queen of Yellows*, clear bright yellow, very fine spike. *Quadroon Improved* (Minchin), very dark maroon, a fine flower. *Walden Queen*, soft delicate flesh, flushed with rosy carmine, probably one of the finest flowers ever sent out.

It is doubtful if a finer selection of flowers, new and old, could be made than those named above, which represent all the lines of improvement of which the Hollyhock has been made susceptible during the past ten years. They are both creditable to their raisers, and an honour to floriculture.—R. D.

LADY'S SLIPPERS.—CHAPTER VI.

N the dreary winter season all flowers are welcome, and none more so than those of the pretty but old-fashioned *Cypripedium insigne*. It is a stemless plant, with long pale-green ligulate emarginate unequal-pointed leaves, and stout dark purple flower-scapes, bearing a solitary flower, the dorsal sepal of which is roundish-oblong, arching or incurved, undulated, yellow-green at the base, white at the top, the green part spotted with brownish purple; the anterior sepal is smaller, green, lineately blotched with brown purple. The petals are linear-oblong, nearly $2\frac{1}{2}$ in. long, obtuse, downy outside, glossy within, yellow-green suffused with a bronzy tint, spotted and indistinctly veined with dull purple, the undulated edge being uncoloured, and the base bearded. The lip is oblong-obtuse, shallow, with blunt erect lateral lobes, and of a bronzy yellowish-green, with the veins purplish, and the interior of the side lobes spotted. The sterile stamen is large, obovate, papillose, yellow, bearded at the base with purple hairs, and having a blunt orange-yellow horn in the centre. There is in cultivation a variety called *Maulei*, which has the leaves shorter, and the dorsal sepal much more brightly coloured, the white extending fully half-way down, and the spotting at the base being of a rich purple. The inferior form is, however, sometimes cultivated under this name.

This is one of the most useful orchids for winter decoration, as it continues in bloom a long time either in a greenhouse or a conservatory, and will keep fresh for a considerable period in a warm room. It is advisable, however,



not to allow the temperature in which it is kept to get below 40° , although I have seen it bloom where it has been almost down to freezing-point. The flowers of this plant are well adapted for cutting, as they keep good in water for a considerable length of time.

It is of easy culture, and by having several plants of it a succession of bloom may be kept up for months, provided the early ones are placed in a little heat, and the later ones kept in a cool greenhouse. The flowers must be kept dry, in order that they may continue in beauty for several weeks. This plant will do well in a glass pit or frame during the summer months, but must be brought into the house in autumn for blooming. It has thick, fleshy roots, and, therefore, requires good drainage; but a liberal supply of water must be given during the growing season, and even in winter the soil should be kept moist, as it has no succulent bulbs to support it, and on that account requires more direct sustenance. It should have good soil, and then plenty of flowers may be expected, and they will repay all the attention bestowed upon it. The most suitable soil is a mixture of rough fibrous peat, loam, leaf-mould, and sand, all well mixed together. This *Cypripedium* is not liable to the attacks of insects, if the plant is cared for and kept in a healthy condition.—B. S. WILLIAMS, *Victoria Nursery, Holloway*.

THE GARDEN MENTOR.

DECEMBER is generally the dullest and dreariest month in the year; the weather is mostly very uncertain; sometimes we have pelting storms of rain or snow, and at other times severe frosts. Even at this dull season, when deciduous trees are bare, and there is little in the way of flowers in the borders, evergreen trees and shrubs are full of interest, and show to great advantage.

KITCHEN GARDEN.—All out-door operations will now depend on the state of the weather. Advantage should be taken of frosty weather to wheel manure on to quarters where it is wanted; and all decaying substances should be collected into heaps for manure. In bad weather everything that can possibly be done in-doors should be pushed forward, so that it may not have to be done in fine weather. Any *Endive* and *Lettuce* still in the open ground should be lifted and stored as directed last month. *Celery* should be protected in frosty weather. In mild weather *Cauliflowers* and *Autumn Broccoli* should be looked over, and all plants showing heads should be lifted, and stored carefully. Towards the end of the month a portion of the best *Parsley* should be covered with spare lights, to protect it from frost. The *Peas* sown last month, when above ground, should have a little earth drawn up to them, and towards the end of the month they should be protected with some small evergreen branches. *Asparagus* may be forced from the present time until it comes into use out-of-doors, by taking up some roots, at intervals of three or four weeks, and placing them on a gentle hot-bed, covering the roots with soil to the depth of three or four inches, and giving them a good soaking of water, to wash the soil in among the roots; the frames should be covered at night, and air should be given at every favourable opportunity. More *Seakale* and *Rhubarb* should be covered up for forcing.

FORCING HOUSES.—*Pines*: The plants that are swelling fruit must now be

well attended to. Maintain a night temperature of from 65° to 70°, and a moderately moist atmosphere; see that there is a bottom-heat of about 85°, and water when the plants require it. The plants intended to show fruit in February and March should not be excited at the present time; keep up a night temperature of from 60° to 65°, with a moderately dry atmosphere, and give air at every favourable opportunity; keep the succession plants tolerably dry; give air at every opportunity; maintain a night temperature of 60° and a bottom-heat of about 80°, and the plants will do well. *Vines*: When the vines in the early house begin to break, increase the temperature gradually to about 60° at night, which will be sufficiently high until the vines come into blossom; give air freely at every favourable opportunity. *Peaches*: Maintain a healthy atmosphere in the early house; admit air when the weather permits, and do not exceed a temperature of 45° at night. *Figs*: This is a good time to shift any plants in pots or tubs that require it; use turfy loam and a little leaf-soil, and plenty of drainage; a few plants may now be put into a little heat for early forcing. *Strawberries*: Protect these well in frosty weather; a batch of plants may now be put into the early Peach house for forcing.

HARDY FRUIT GARDEN.—The planting of fruit trees recommended to be done last month, if not completed, should be proceeded with in fine weather. Continue the pruning of fruit trees; thin the spurs well, leaving the plumpest and best buds that are nearest the branches; this is a point of the greatest importance in fruit-tree management; when it is not attended to properly, the spurs get overcrowded, and very few of the buds are blossom buds, and those that are blossom buds are so imperfect that they never set their fruit. When the spurs are well thinned, and the plumpest buds are retained, the blossoms are always fine and perfect, and rarely fail setting fruit. Look over the stores in the fruit-room frequently, and pick out any fruit that shows the slightest symptoms of decay.

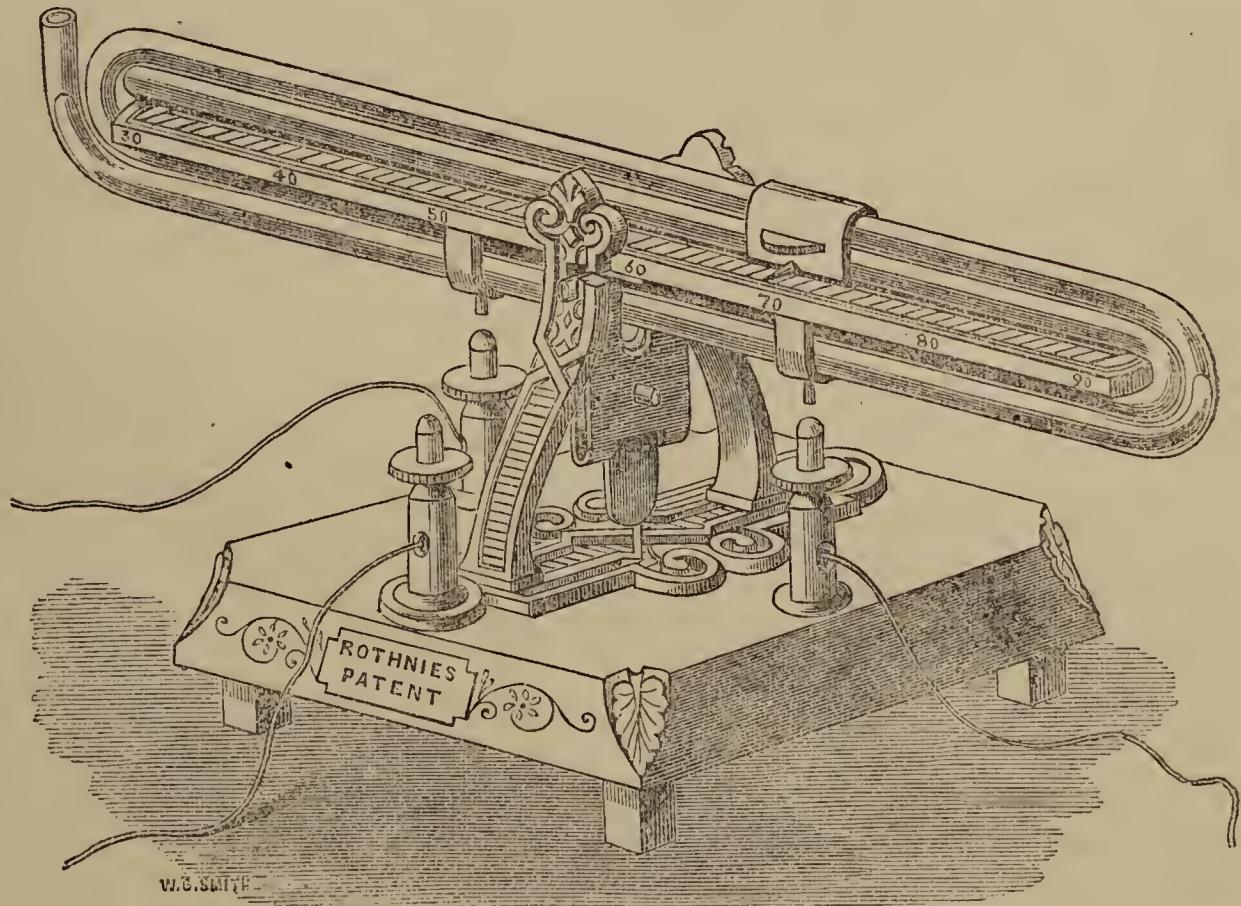
FLOWER GARDEN.—*Plant Houses*: At this season of diminished light, heat and moisture should be reduced to the lowest degree possible compatible with the safety of the plants. *Soft-Wooded Plants* should have a good deal of attention at this season; water only when absolutely necessary; remove decaying and superfluous leaves, and keep the plants well tied out, so as to admit light and air; keep the plants as near the glass as possible, and give air at every favourable opportunity. In damp dull weather light gentle fires during the day, to dry up the moisture and expel the damp. In frosty weather keep sufficient fire-heat to prevent the temperature at night falling below 40°. *Hard-Wooded Plants* should have all the air possible at every favourable opportunity, but should not be exposed to cold currents. Avoid fires as long as possible, and when they become necessary in frosty weather, carefully guard against a high temperature at nights. Take advantage of unfavourable weather to clean, wash, and tie out, and train any plants that may require it.

Pits and Frames.—The instructions given last month will serve for this. Keep the pits and frames as dry as possible; give air at every favourable opportunity; and cover well up in frosty weather. Few plants will then suffer much.

Out-Doors.—The work here will depend on the state of the weather. If severe weather sets in, see that everything that requires it is well protected. As before recommended, alterations and the planting of hardy trees [and shrubs may be proceeded with in fine weather. Now the leaves are all off, every place should be well swept, and the leaves collected into heaps for compost.—M. SAUL, Stourton Park.

THE VICTORIA ELECTRIC THERMOMETER.

REGULARITY in the temperature of plant-houses, especially those which are devoted to the culture of tropical plants, and to forcing, is so important a point in plant-culture, that any means of ascertaining and thus of checking irregularity, must be a great boon to the gardener, since it would be calculated to relieve him from the pressure of anxiety on this very important matter. It is as one means to this end that I have designed the Victoria Electric Thermometer, of which a figure is annexed.



It will be seen that the instrument consists of a peculiar form of balance thermometer, designed with the object of bringing into contact the wires of a galvanic battery, and, by the electric current thus set up, indicating either a rise or fall in the temperature of the house in which the apparatus is placed. This is effected by the ringing of a bell, or by other means.

The thermometer tube is nicely poised on pivots between two upright pieces of brass, these upright supports being securely fastened to an alabaster stand, on each side of which is fixed a small brass pillar, having another piece of metal, either of platinum or aluminum, screwed on to its top, while beneath the tube another point of the same metal is fastened at each end opposite the pillar, so that on whatever side the tube may descend, it will bring in contact these two points, namely, that on the pillar and that on the thermometer. To the two brass pillars, which are insulated, the conducting wires (shown on each side) are fixed. It will be evident that the electricity can only form a circuit when the thermometer is out of balance so that the platinum point at one end or the other touches that at the top of the corresponding pillar, in which case the wire attached to it, being in connection with the positive end of a battery, conducts the electricity from thence through the platinum points and along the metal plate under the scale of the thermometer, whence it escapes by the pivots into the two supporting pieces of brass, and passes into the pillar seen in front, and to which a wire is fastened leading to the earth, or negative end of the battery.

The wires are led from the hothouse, where the thermometer is placed, to the gardener's room, each of them being connected with a distinct-toned electric bell, so that, when the bell is rung by the means just explained, the gardener may know by its sound whether the house in question is too hot or too cold. The electric current may also be made to indicate the same facts in other ways. If the gardener's house is situated at a considerable distance, one wire only, in order to save expense, may be used, but in this case only one bell can be rung. In houses where electric bells are already in use, the thermometer can easily be connected with them at very little expense.

The tube of the thermometer is coiled round a central piece of wood on which the degrees are marked, and on this is placed a sliding weight and index, which, being passed along the top of the graduated scale, will balance the thermometer at the point indicating the particular temperature required. Then if the temperature of the house be equal to that at which the index is set, the tube will be evenly balanced, and no electric action will take place; but if it becomes either too hot or too cold, the depression of the tube to the hot or cold end, as the case may be, will set up a current, and this will cause the bell to ring until the heat is regulated to meet the required standard. It has been found that in ordinary cases the instrument is too sensitive, to obviate which the centre of gravity may be elevated or depressed, thus making the action slow or sensitive, as may be required. This is effected by means of a screw fastened to the pendent beneath the tube.

The action of the instrument is the result of the expansion of spirit, which occupies the upper part of the tube, and rests on quicksilver in the lower part. This latter, by the expansion or contraction of the spirit, is displaced at one end of the tube and driven over to the other, as the heat or cold may predominate.

This overbalancing of the tube causes it to descend, so that the metal point comes into contact with the pillar on the side to which it is inclined, and thus the current is established. The tube being formed of one length of thin glass, exposing a great surface to the air, is very quickly affected by heat or cold.

To the gardener, or the maltster, or to anyone who requires an even temperature in a building or apartment of any kind, the Victoria Thermometer especially commends itself, on account of its reliability, its power, its accuracy, and its extreme sensitiveness. In large buildings it might be of the greatest service in case of fire, by ringing an alarm-bell on the top of the building. The instrument is not liable to get out of order.—G. ROTHNIE, *Victoria Nursery, Holloway.*

MONSTERA DELICIOSA.

HE *Monstera deliciosa* is described as a new fruit-bearing plant, with aerial roots as thick as one's finger. The fragrance of one of its ripe fruits is said to be equal to that of a whole houseful of Pine-apples.

 This fruit was introduced to public notice by being shown ripe at a meeting of the Fruit Committee of the Royal Horticultural Society, and it was also shown at the Manchester meeting. Those at a distance who have not seen this novelty, but who hear its high-sounding name, will naturally feel anxious to get some reliable details respecting its character, for surely it must be a veritable *magnus bonum* amongst fruit. I have seen fruits (of the gourd) exhibited at Chiswick that would have filled a wheelbarrow, and in the absence of information, the uninitiated might conjecture that the *Monstera* might be as great as these. Grapes are luscious, and Pine-apples are smartly-flavoured, but this fruit is said to be delicious :—

“Kings may be happy,—
Tam was glorious.”

When the veritable fruit of the *Monstera deliciosa* lay before me at Manchester, I could not help thinking that indeed the “mountain had been in labour and had brought forth a mouse!” Gentle reader, save yourself the expense and trouble of travelling to Chatsworth or to Cliveden, for you need only picture to yourself a fruit of the *Typha*, of a light pea-green colour, with a very thick flower-stalk and a long thin fruit, say of the length and thickness of the tail of the domestic cat, and you will have a very good idea of the fruit, as exhibited, of the *Monstera deliciosa*. It has been stated that this plant is turned out in summer in a sheltered situation at Cliveden, on the banks of the Thames. Now this may deceive the unwary, and lead them to suppose that it is half-hardy. The planting out at Cliveden or elsewhere is, however, not to obtain fruit, but to give a sub-tropical air to the group of which it is certainly a very odd member. “J. F.” honestly states that the fruit takes a whole year to ripen, after it has done flowering, and as the frost on the banks of the Thames will always put in an appearance at least once in the year, the *Monstera* must betake itself to the hothouse, of which it is a legitimate inmate. The old name *Philodendron* (*phileo* to love, *dendron* a tree),

gave some idea of the oddity of this plant, which is that of a somewhat unwieldy creeper, ascending the trees by means of its numerous stout clinging roots, and with all due deliberation propagating its species by bearing fruit of a few ounces' weight once in two years. Mr. POMOLOGIST, with your "Kentish Fill Basket," what think you of this?—ALEX. FORSYTH, *Salford.*

* * * Mr. Forsyth is somewhat at fault, both as to the size and merits of the *Monstera*, which we have grown with much success at Chelsea, and which is really worth a place in any garden establishment, for the sake of affording from time to time a dish of its unusual and delicious fruit, of which many ladies and gentlemen are particularly fond. Well-grown samples when ripe are some 8 in. or 9 in. in circumference, and average about a foot in length. The smell of a ripe fruit is most penetrating and appetizing, though it may not be agreeable to everyone; it appears to us to be a blending of the fragrance of a pine and a melon. The juice is so exceedingly rich that it soon becomes cloying. One plant rambling over a water-tank in a warm house has for several years borne from six to twelve fruits annually, the fruit ripening in succession at intervals of two or three weeks, about the same interval as occurs between the flowering, and about a year from the time of flowering, fresh flower-spikes—for it is a compound fruit—forming annually to keep up a succession. The plant is well worth growing as an ornamental object, its large and curiously cut leaves having a remarkably fine appearance. With us it generally flowers in July and August.—T. M.

GRiffinia HYACINTHINA.

 HIS plant is somewhat scarce, but, nevertheless, it is deserving of cultivation even in the most select collections. With me it blooms in the autumn, and continues in flower for eight or nine weeks. It is well adapted either for decorative purposes, or for the supply of cut flowers. In bouquet-making it equals in form the lovely *Pancratium*, and at the same time furnishes a colour not over plentiful, namely, violet and white. One of the most beautiful bouquets I ever recollect to have seen, was made of this *Griffinia*, with *Stephanotis* and pink Rose-buds.

It is a native of South America, and requires the temperature of an intermediate house or warm vinery. It grows well, in a mixture of two-thirds yellow loam and one-third peat, with a moderate quantity of sharp sand, but not more than just sufficient to secure porosity in the soil. All bulbs of this description dislike anything approaching light soil. It requires that the soil in potting should be rammed firmly down, and that just sufficient drainage should be used to prevent any stagnation of water about the roots.

During the growing season—that is, from the beginning of March to September—it requires a plentiful supply of water. After this it will begin to throw up bloom, and then a little less water may be used; but even when the blooming is over, and the plant is at rest, it must never be allowed to become

dry, as it is, like the Vallota, an evergreen bulb. After blooming, it should have a good light situation, in a house where the temperature is not allowed to get lower than 48° or 50° .

It is a very clean plant, not being subject to the attacks of any of the numerous garden pests. If it happens that thrips or scale attack its smooth, regularly-shaped leaves, these pests may be easily removed with a sponge. In habit the plant is not unlike *Eucharis amazonica*, and it is increased in the same way, namely, by division of the bulbs. It is a slow grower. I obtained a small plant of it eighteen years ago; this is now over five feet across.—T. BAINES, *The Gardens, Southgate House, Southgate, N.*

RENDLE'S PORTABLE PROPAGATORS AND VINERIES.

We perceive that Mr. W. E. Rendle goes on developing his idea of cheap glass plant-protectors, to which we have on more than one occasion already alluded with commendation. The original design consisted of two walls of hollow bricks with a sloping glass cover, the chief objection to which was want of solidity, as the walls were liable to be blown down by the wind. This defect has been met by means of steadyng rods, and greater facility

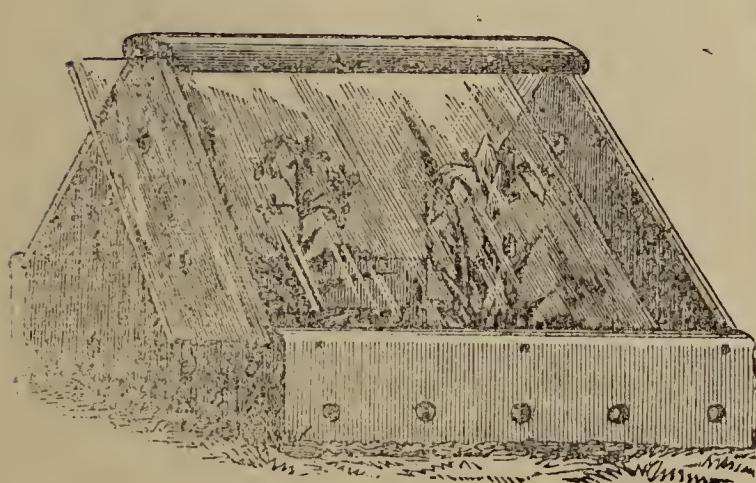


FIG. 1.

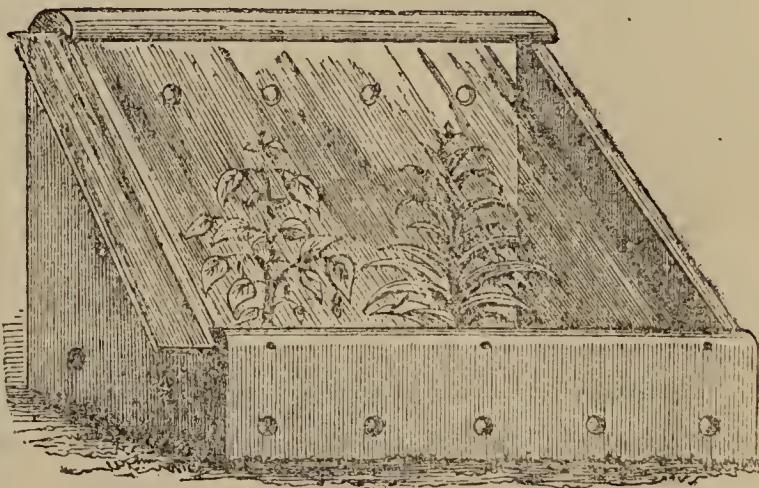


FIG. 2.

has been given for shifting the glass. Some of the tiles are also now made so as to admit of double glazing, and in this form these portable structures must have vastly increased powers of resisting frost. Among the more recent novelties of design are the Portable Vineeries or Orchard-houses, represented on p. 282, at figures 3 and 4, and which are applicable to a variety of uses besides those of growing vines or cordon fruit trees. These are constructed of galvanized iron and glass, and are supplied at from 8d. to 1s. per square foot, according to quantity. The figures will be found self-explanatory.

Another novelty consists of the Ventilating Seed-growers and Propagators shown in figures 1 and 2. They are made of three sizes, 6 in. by 9 in., 10 in. by 14 in., and 12 in. by 16 in.; the lean-tos at from 6s. to 30s. per dozen; the span-roofs at from 9s. to 44s. per dozen. The most perfect ventilation is secured

for these protectors by the holes at front, back, and side, and these can be stopped if required by means of an ordinary cork; while the glass slides along the grooves, and can readily be removed, either wholly, or in part, as may be

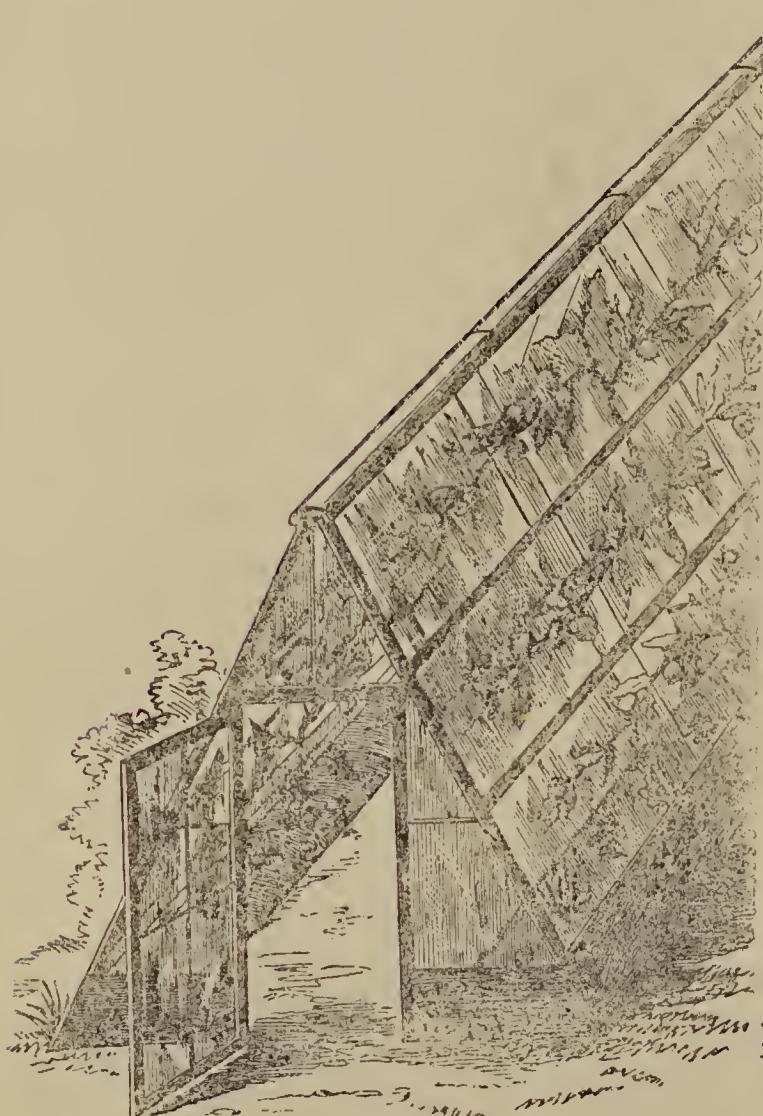


FIG. 3.



FIG. 4.

necessary. The uses to which these handy contrivances might be put in the garden of the amateur are manifold; and, indeed, all the forms we have here illustrated would certainly be utilized, as protectors at one season or other, in gardens of much higher pretensions.—M.

LILIUM AURATUM.

HAD between 400 and 500 seedling varieties of this glorious *Lilium* in flower this summer; and being nearly all in flower at one time, the display was gorgeous in the extreme. The seed was sown in April, 1866, and some of it did not vegetate that year, but formed little bulbs in the soil. In 1867 they were pricked out into shallow boxes, the soil being peat and sandy loam; and the year after, they were all potted singly into small pots. A few of the plants flowered last year, but the great bulk of them did not flower till this season, when many of them yielded from seven to eleven flowers on the stem. A great diversity of colour and of form was to be seen in these seedlings. Many of them had a broad red band instead of the yellow, which changed to a brownish

tint when the flowers got older. Some of the pods of seeds sown were crossed with *L. speciosum*, but none of the seedlings showed the reflexed shape of *speciosum*, only a darker spotting, and the red band in several which have been marked and crossed again this year with a very dark crimson seedling off *speciosum*.

When the *L. auratum* seed was sown in 1867, there were sown at the same time three pans of seeds saved from *L. speciosum* crossed with *L. auratum*, but only a few plants have flowered this year, and they have not shown any decided effects of the cross in the shape of the flowers or foliage. Some have come white, others of a pale rose-colour, and others of a deep crimson, with dark spots. I have crossed some of these seedlings with *L. tigrinum* and other species of hardy *Lilium*, which were in flower in the borders at the time, and expect to get some fine new varieties from them.—WILLIAM TILLERY, Welbeck.

HARDINESS OF THE DESERT PEA.

*B*T may interest some of your readers to know that the *Cianthus Dampieri*, so delicate and fastidious when young, succeeds perfectly out-of-doors in the summer and autumn months, and is admirably suited for a mixed sub-tropical bed, or a herbaceous flower-border. Plants raised here from seed sown early in March last, were nursed in heat until the beginning of June, and then partially hardened by a fortnight's exposure in a cold frame, preparatory to turning them out into the open air about the middle of the month. To guard against failure, they were protected for at least a fortnight or three weeks afterwards by placing over them an inverted flower-pot during cold nights and bright sunshine. The plants treated in the way here described far surpassed in beauty those cultivated in pots and kept under glass. As an illustration of their hardness, I may mention that we have some plants still in fine flower (November 10), having withstood unscathed the 3° of frost which we had on the 11th ult., while Dahlias and many of the old sorts of annuals usually cultivated in our gardens were completely destroyed. Some flowers [very well-developed ones] are enclosed as evidence.—J. WEBSTER, *Gordon Castle*.

GARDEN GOSSIP.

*B*N the flower garden of Lord Bridport, at Cricket St. Thomas, *Scarlet Pelargoniums* are made a very effective feature in the form of dense round bushes, like specimen Ixoras, placed at intervals by the side of a long straight walk. The plants are 4 ft. high, and as much through, and form large neatly-trained bushes, covered with grand trusses of flowers. The plants used are about four years old, and all that is done to them is simply to take them up in the autumn, cut them well back, and plant them as thickly as possible in square boxes, after which they are placed in a cold viney until spring, when they are taken up, fresh potted, and pushed along gently until bedding-out time. When planted out, they require to be regularly pinched and tied out, a work well and quickly done by a practised hand; and of course they require to be well watered in dry seasons.

— MR. BAINES reports very favourably in the *Gardeners' Chronicle* of his trial of the *Abyssinian Mixture* for killing insects on plants. He commenced by using it at the prescribed strength, 4 oz. to the gallon, which killed some of the mealy-bugs, but left many alive. It was next tried at 5 oz. to the gallon, leaving the solution to dry on the plant; this left very few alive. It was then applied at $5\frac{1}{2}$ and 6 oz. to the gallon, and he has not since seen a single bug about the place. Brown-seale is also reduced to a minimum by simply well washing the plants with the mixture, in the winter, at 6 oz. to the gallon, before active growth commences, and once during the summer, at 5 oz. per gallon, on account of their young leaves being then more tender. The directions for use on the labels are right so far as the destruction of green-fly, thrips, or red-spider are concerned; in fact, it will kill these insects at $2\frac{1}{2}$ oz. or 3 oz. to the gallon; but for bug or seale it requires to be used at the greater strength above stated, in all cases leaving the solution to dry on the plants. Every part of the plant should be thoroughly wetted, by syringing over a trough. The solution does not in the least injure the roots.

— A new and cheap disinfectant and antiseptic lately brought into notice bears the name of *Chloralum*, and is a solution of hydrated chloride of aluminum. All fetid and offensive smells are instantly absorbed by this solution, as they would be by so much acid; and many bad smells which carbolic acid might indeed overpower in virtue of its own strong odour, but which it cannot destroy, are at once removable by chloride of aluminum. Thus the fetid stench from cabbage-water is at once removed by Chloralum, but not by carbolic acid. In this respect, Chloralum has some advantages over even permanganate solution, which destroys fetor by oxidizing the fetid substance, but which is almost powerless against, or acts very slowly upon, some varieties of malodorous things that have the property of not being very easily oxidizable. Even chloride of lime is hardly so potent against some kinds of fetor as is Chloralum.

— THE *Alligator Pear*, or *Avocado* (*Persea gratissima*), exhibited for the first time in England last year, from the collection of tropical fruits grown by R. Hinds, Esq., of Byfleet, is now about 25 ft. high, and has on it another crop of 15 fruits in various stages of development. Another plant of a different variety, growing in the same house, is also bearing fruit.

— AT the *Gardeners' Examination*, held under the auspices of the Royal Horticultural Society, July 12, 1870, the following young men obtained Certificates of the Second-Class in Floriculture:—G. Haskins, C. Burley, W. Mitchell; and the following Third-Class Certificates in Fruit and Vegetable Culture:—G. Haskins and C. Burley.

Obituary.

— DR. THOMAS ANDERSON, F.L.S., died at Edinburgh on October 26. He was a devoted student of Natural History, and selected the East India Company's Service as likely to afford him opportunities for the prosecution of those studies. When Dr. Thomson left Calcutta, Dr. Anderson was appointed to the temporary charge of the garden there, and he succeeded Dr. Thomson when the latter retired from office. He laboured successfully in establishing the Cinehona plantations in the North of India. Nearly two years ago he was compelled to return to England, on account of dangerous illness, from which he recovered sufficiently to enable him to prosecute his botanical work, but a few months ago he suffered a relapse, from which he never rallied.

— MR. RUPRECHT, a Russian botanist, died at St. Petersburg on August 4. He was born in 1814, at Prague, where he studied medicine. In 1839 he was appointed Conservator of the Botanical Museum of the Imperial Academy of Sciences in St. Petersburg, and in the interests of the Academy he undertook several journeys, notably in the Caneasian provinces, where he made large collections. For a short period he was Assistant-Director of the Imperial Botanic Garden at St. Petersburg.

INDEX.

- ABIES, growth of, as timber, 181.
 Abyssinian mixture, 284.
 Acanthus longifolius, 6.
 Acer rufinerve albo-limbatum (*A. japonicum argenteum*), 6.
 Acrophorus hemiptera, 5.
 Adiantum Capillus-Veneris magnificum, 5 ;
 A. Capillus-Veneris undulatum, 5 ; *A. decorum*, 249 (woodcut), 268 ; *A. excisum Leyi*, 5 ; *A. peruvianum* (woodcuts), 220 ;
 A. rubellum (woodcut), 250, 267.
 Aërides *japonicum*, 46.
 Agaricus, culture of (woodcuts), 180.
 Agave Besseriana (woodcuts), 257 ; *A. cuspidata*, 94 ; *A. horrida* (woodcuts), 41.
 Alnus glutinosa aurea, 142 ; *A. glutinosa rubro-nervia*, 142.
 Alocasia hybrida, 45 ; *A. Liervallii*, 45 ; *A. Sedeni*, 45.
 Alpine Flowers for English gardens (woodcuts), 97.
 Alternanthera magnifica, 261.
 Anæctochilus Dawsonianus, 38.
 Androsace pubescens, 7.
 Annual and Herbaceous Plants, collection of, 239.
 Antiflamine, 240
 Antirrhinums in pots for exhibition, 120.
 Aponogeton, culture of, 35
 Apple, Fairy (plate), 49 ; as an ornamental plant, 104.
 Apples, new, 37.
 Apple butter, 192.
 Apricot, as a standard or bush tree, 265.
 Apricots, new, 37.
 Aquarium Plant-case, Radclyffe's (woodcut), 144 ; as window furniture (woodcut), 168.
 Aquatics, 35, 77, 176, 222.
 Aquilegia californica, 96 ; *A. eximia*, 96 ; *A. truncata*, 96.
 Aralia Sieboldii aureo-marginata, 7.
 Archimedean Lawn Mower (woodcut), 96.
 Ashen Tree as a curative agent, 127.
 Asplenium fernandezianum, 5.
 Aster longifolius var., 261.
 Athyrium Filix-fœmina Elizabethæ, 6 ; *A. Filix-fœmina kallothrix*, 6.
 Auricula, Alpine, 116, 140 ; John Leech (plate), 241 ; Monarch (plate), 241 ; Selina (plate), 241 ; select, 53.
 Auriculas, composts for, 133 ; plea for, 85 ; re-potting of, 156.
 Avocada, 284.
 Azaleas, new, 115, 141, 166.
 BEANS, preserved Kidney, 263.
 Bedding plants, Yellow-leaved, 248.
 Beech, purple, 240.
 Begonia boliviensis, 239 ; *B. Sedeni*, 44.
 Bertolonia primulæflora, 44.
 Birch, growth of, 182.
 Boiler, Weeks' Patent Duplex Compensating (woodcut), 114.
 Bouvardia jasminiflora, 72 ; *B. longiflora*, 72.
 Bracken, transplantation of, 264.
 Brassia Lawrenceana longissima, 46.
 Broccoli all the year round, 83.
 Brodiaæ coccinea (plate), 145 ; 166.
 Butomus, culture of, 222.
 CABBAGE, Sandringham Sprouting, 72.
 Calamus ciliaris, 5.
 Calochortus uniflorus, 6.
 Camellia, Leopold I. (plate), 97.
 Carbonic Acid, decomposition of, by leaves, 191.
 Carnations, Perpetual-flowering, or Tree, 12, 89 ; select, 32.
 Carp, cause of mortality of, 240.
 Carpet-Bedding at Battersea (woodcuts), 235.
 Catalpa syringæfolia aurea, 214.
 Cattleya Trianæ, 93 ; *C. Trianæ Lawrenceana*, 93.
 Cauliflower all the year round, 83 ; Veitch's Autumn, 243.
 Cedrus, growth of, as timber, 181, 182.
 Cement for uniting polished surfaces, 95.
 Cerasus Laurocerasus rotundifolia, 93.
 Cereus, culture of, 194.
 Chamærops, 95.
 Cherry, Burghley Park, 229 ; Morello, 79.
 Chimonanthus fragrans, 235.
 Chiswick Garden, 118.
 Chloralum, 284.
 Chorozema Lawrenceanum, 29.
 Chrysanthemum frutescens, 264.
 Chrysanthemums, culture of, for amateurs, 21, 39, 110 ; new, of 1869, 14.
 Cineraria asplenifolia, 261.
 Clematises, new early, 116, 141, 166 ; New Hardy, 214 ; Princess Mary (plate), 121.
 Clematis æthysifolia, 6.
 Clerodendron fragrans, 74.
 Clianthus Dampieri, 283.
 Cloves, select, 32.
 Cobæa penduliflora, 44.
 Coccus flocciferus (woodcuts), 119.
 Codiaeums (Croton), new, 44, 205.
 Coffee, a disinfectant, 95.
 Colens as a Bedding plant, 155.
 Colouring-matter of plants, 218.
 Corbularia monophylla (woodcut), 84.
 Cordyline indivisa latifolia, 7.
 Cork Tree, growth of, 182.
 Cotoneaster congesta, 6 ; *C. prostrata*, 6.
 Cotyledon fulgens, 8.
 Crab, Imperial, 95.
 Crotons, new (woodcuts), 44, 205.
 Cryptomeria, growth of, as timber, 182.
 Cucumber, new, 38.
 Cupressus Lawsoniana albo-spica, 6 ; *C. Lawsoniana erecta viridis* (woodcut), 91 ; *C. Lawsoniana pendula alba*, 6.

- Currants, Black, new, 37.
 Cyclamen, culture of, 112.
 Cyclamen persicum giganteum, 115; C. persicum kermesinum, 93.
 Cyclobothra pulchella, 166.
 Cymbidium tigrinum, 46.
 Cypripediums, culture of, 18, 54, (woodcut) 108, (woodcut) 148, (woolcut) 210, (woodcut) 273.
 Cypripedium niveum, 46; C. pardinum, 46; C. Parishii, 46.
- DÆMONOROPS plumosus, 94.
 Dahlias, new, 215, 237, 238, 261, 262; fancy, 238.
 Dahlia arborea, 215; imperialis (woodcut), 8.
 Damson, Crittenden's Prolific, 215.
 Daphne, culture of, 208.
 Daphne elegantissima, 238.
 Davallia hemiptera, 5; D. pallida (Mooreana), 5.
 Delostoma dentatum, 44.
 Delphiniums, 212.
 Delphinium nudicaule, 166.
 Dendrobium cariniferum, 45; D. crassinode, 45; D. Jamesianum, 45.
 Dianthus neglectus, 7.
 Dieffenbachia nebulosa, 45.
 Disa grandiflora, 48.
 Dracæna excelsa, 45; D. magnifica, 45.
 Drechsler's Patent Fumigator, 47.
 Drymonia turrialvæ, 44.
- ECHÉVERIA glauco-metallica (woodcut), 196.
 Edging Tile, Chatsworth (woodcuts), 170.
 Elm, English, 23.
 Encephalartos, new, 7; E. Lehmanni, 96.
 Epacris hyacinthiflora carminata, 94.
 Epidendrum conspicuum, 45; E. syringothyrsum, 45.
 Eranthemum Andersoni (elegans), 44.
 Ericas, 141.
 Erinus alpinus albus, 166.
 Eupatorium gracile odoratum, 119.
 Evergreen Screen, 120.
 Exhibitions, Annual International, Horticultural division of, 143; Manchester National Horticultural, 47; Metropolitan Summer, 167.
- FEATHERFOIL, 222.
 Fig, Grosse Monstrueuse de Lipari (woodcut), 128.
 Firs, growth of, as timber, 182.
 Fittonia gigantea, 44.
 Floral campaign of 1870, 23.
 Floreten (woodcuts), 118.
 Flowers, forcing of, 62, 80, 130; lines on, 55.
 Flowers, sweet-scented, 105, 137, 208.
 Flower-pots, size of, 239.
 Flower-pot holder (woodcuts), 118.
 Forcing, art of, 62, 80, 130.
 Forget-me-nots, or True Lovers' Knots, 174.
 Frog-bit, 176.
 Frosts versus Fruit Blossoms (woodcuts), 157.
 Fruit, failure of, in 1869, 172; forcing, 62, 80, 130; new, 36.
- Fruit Blossoms versus Frosts (woodcuts), 157.
 Fruit Crops of 1869, failure in, 33; of 1870, 153; condition of, 215.
 Fruit prospects, 143.
 Fruit-raising, hints on, 4.
 Fruit thinning, 121.
 Fruit Trees, transporting of, to colonies, 47; cordon, 254.
 Fuchsias, new: Avalanche (plate), 73; John Bright (plate), 73; John McElroy (plate), 73; Splendour (plate), 73.
 Fumigator, Drechsler's Patent, 47.
 Fungus Show at South Kensington, 262.
- GARDEN, Wild, rev., 258.
 Gardens, shelter for, 230.
 Garden Gossip, 23, 47, 71, 94, 118, 143, 167, 191, 215, 238, 262, 283.
 Gardeners' Examinations, 168, 284.
 Gardenias, culture of, 105.
 Gardening, Cottage and Window, prize essays on, 167.
 Gardening Operations: January, 1; February, 25; March, 51; April, 75; May, 102; June, 125; July, 160; August, 185; September, 198; October, 223; November, 251; December, 275.
 Garrya Thuretii, 6.
 Genisaro tree, 24.
 Gesnera bulbosa, 269; G. elliptica, 268; G. longiflora, 269; G. tuberosa, 269.
 Gladiolus in 1869, 63; new, 261; Show, 95.
 Glass Wall, Beard's, 168; (woodcuts), 188.
 Gloxinias, new, 116, 167; Mademoiselle Jeanne Prévost (plate), 265; Negro (plate), 265; Scarlet Gem (plate), 265.
 Godetia Whitneyi, 214.
 Godoya splendida, 44.
 Godwinia gigas, 45.
 Goodyera Dawsoniana, 38.
 Grafting Unfruitful upon Fruitful Trees, 68.
 Grafting-wax superseded, 253.
 Grape, Black Monukka, 47; Melville's Perfumed Muscat, 23; M. de Lesseps, 37; Perfumed Muscat, 37; White Lady Downe's, 36.
 Griffinia dryades, 45; G. hyacinthina, 280.
 Gymnogramma Laucheana gigantea, 5; G. tartarea aurata, 255.
 Gymnothrix latifolia, 7.
- HEDERA varieties of, 271.
 Heliconia densiflora, 45; H. glauca, 45.
 Hollyhocks, new, 70, 215, 272; for exhibition, 92.
 Hoop-petticoat, White (woodcut), 84.
 Horticultural buildings, improvements in construction of, 192.
 Hoteia japonica variegata, 6.
 Hothouses, Ormson's Ventilation for (woodcut), 227.
 Hottonia palustris, culture of, 222.
 House for pot vines (woodcut), 138.
 Houseleeks, 201.
 Hydrangeas, Blue, 65; H. japonica speciosa, 214; H. stellata flore-pleno, 141.
 Hydrocharis, culture of, 176.

- IBERIDELLA rotundifolia**, 7.
Iberis gibraltarica, 23.
Idesia polygama, 263.
Indiarubber, Sheet, for grafting, 253.
Insects, solution for destroying, 240.
Insect Intoxication, 129.
Iris stylosa, 6.
Ivy, African, 271; Asiatic, 272; European, 270; Garden, 269.
- LADY'S Slippers**, 18, 54; (woodcut) 108; (woodcut), 148; (woodcut), 210; (woodcut), 273.
Laelia Pilcheri alba, 94; *L. purpurata alba*, 45.
Lawn Mower, Archimedean (woodcut), 96.
Leptosiphon roseus, 166; (plate), 217.
Leschenaultia biloba major, 108.
Lettuce, new, 38.
Libonia penrhosiana, 93.
Liliums, new, 213, 214; *L. auratum*, 136, 214, 282; hardiness of, 136; *L. Leichtlinii*, 213; *L. Maximowiczii*, 6, 249; *L. speciosum*, 213, 239; *L. tigrinum flore-pleno*, 213; *L. tigrinum splendens*, 214; *L. Wilsonii*, 214.
Lily of the Valley, 66.
Linum trigynum, 86.
Liriodendron tulipiferum aureo-pictum, 6.
Lloyd, Mr. John, death of, 72.
Loudon's Amateur Gardener's Calendar, rev. (woodcuts), 60.
Luculia gratissima, culture of, 120.
Lychnis Lagascae, 7.
- MACADAMIA ternifolia**, 23.
Mackaya bella, 7.
Macrozamias, new, 7.
Malus floribunda, 165.
Manchester Horticultural Exhibition, 47.
Maranta princeps, 45; *M. virginialis major*, 45.
Martinezia Lindeniana, 5.
Melons, new, 37.
Mentor, Garden, 1, 25, 51, 75, 102, 125, 160, 185, 198, 223, 251, 275.
Menyanthes, culture of, 223.
Methven, Mr., testimonial to, 118.
Metropolitan Society for Encouragement of Florists' Flowers, 168, 238.
Mignonette, Tree, 28.
Miltonia Regnellii purpurea, 46; *M. virginialis*, 46.
Mimetic Plants, 191.
Monolæna primulæflora, 44.
Monstera deliciosa, 279.
Mormodes uncia (*Greenii*), 46.
Moss, fresh, recipe for preparing, 264.
Moths, British, rev. (woodcuts), 30.
Mulberries for Orchard-houses, 197.
Mushroom-culture, 167; rev. (woodcuts), 177.
Myosotis, 174.
- NARCISSUS monophyllum** (woodcut), 84.
Nectarines, new, 37; Rivers' Seedling, 219.
Nepenthes, remarks on (woodcut), 245.
Nertera depressa, 7.
New Fruits and Vegetables, 36.
- New Plants of 1869, 5, 44.
Novelties at Flower Shows, 93, 115, 140, 166, 212, 237, 260.
- OAKS**, growth of, as timber, 182.
Obituary: Dr. Thomas Anderson, 284; Mr. W. Barnes, 24; Mr. Samuel Broome, 72; Mr. John Brown, 48; Mr. John Lloyd, 72; Mr. W. H. Perry, 24; M. Ruprecht, 284; Mr. John Sladden, 48; M. Victor van den Hecke, 120; Mr. John Gould Veitch, 216; Baron Charles von Hugel, 192; Mr. John A. Watson, 216; Mr. W. S. Wilkie, 96.
- Oncidium euxanthinum**, 46; *O. fuscatum*, 46; *O. Rogersii*, 46; *O. splendidum*, 46; *O. varicosum Rogersii* (plate), 25.
- Oncosperma Van Houtteanum**, 5.
- PALM Trees**, 95.
Pandanus Veitchii, 45.
Pansies, bedding, 40, 72, 116; for spring bedding, 40; new, 116.
Passiflora Lawsoniana, 44; *P. macrocarpa*, 13, 69; *P. Munroi*, 7.
Peas, Desert, hardiness of the, 283; Dwarf Early Marrow, culture of, in pots, 150; early, 257; early, for forcing, 50; new (woodcuts), 16, 38; Laxton's Alpha, 88; Laxton's Supreme (woodcut), 88.
Peaches, new, 37; Rivers' Seedling, 219; method of preserving, 192.
Peach Crop of 1869, failure of, 154.
Pear, Alligator, 284; Prince Albert, 203; Rondelet (woodcut), 57.
Pears at Chiswick, notes on, 243; at Tortworth Court, 10, 182, 231.
Peat earth, Epps' selected, 144.
Pelargonium hispidum, 7.
Pelargoniums, bedding, 166; at Chiswick, 94; Double-flowered, 82; gold and bronze, 261; large-flowered, 167; nosegay, 238; scarlet, 283; show, 212; show, of the year, 234; variegated silver-edged, 141; variegated ivy-leaved, 262; variegated zonal, 166, 214, 261.
Pentstemon, varieties of, 48, 213.
Peperomia argyrea variegata, 45; *P. verschaffeltii*, 45.
Persea gratissima, 284.
Pescatorea (Zygopetalum) Wallisii, 46.
Phædranassa Carmioli, 45.
Phloxes, Herbaceous, 213; in pots, 73.
Phormium tenax Veitchianum variegatum, 7.
Picotees, new, 212; select, 32.
Pinks, choice, 72; Garden, for forcing, 187; new, 94, 166; Northern v. Southern, 116.
Pinus, growth of, as timber, 181; *P. Strobus umbraculifera*, 6.
Pitcher plants (woodcut), 245.
Plants, Annual and Herbaceous, collection of, 239; yellow-leaved bedding, 248.
Plants, Watering of, 117.
Plant-case, Radclyffe's Rustic (woodcut), 144.
Plant Life, absence of from the Ocean, 47.
Plant Protectors, Rendle's, 71, 90.

- Pleetocomia elongata, 5.
 Plum, McLaughlin's Gage, 200; new, 37; Sandall's, 263.
Polyearpa Maximowezii, 263.
Posoquera multiflora, 44.
Potatos, new, 38.
Primula Boveana, 115; *P. eortusoides amœna* (plate), 193; *P. eortusoides grandiflora* (plate), 193; *P. eortusoides striata* (plate), 193; *P. Couttii*, 115, 144; *P. pedemontana*, 7; *P. sinensis semi-duplex striata*, 94; *P. vertieillata simensis*, 115.
Prunus Laurocerasus macrophylla, 6.
Pteris serrulata eristata magnifiea, 5.
Ptychosperma Alexandræ, 5.
 Pustules on Pear Leaves, 215.
 Putty, Thermo-plastic, 120.
Pyrethrum Tehihatchewii, 7, 142.
 QUERCUS, growth of, as timber, 182; *Q. nobilis*, 264; *Q. striata japonica*, 6.
 RASPBERRY, new, 37.
Reseda odorata eximia, 141.
Restrepia antennifera, 45.
Rhododendron Lobbii (woodeut), 232; *R. multiflorum*, 94.
 Rose, Prineess Christian (plate), 1.
 Rose, cultural directions for the, 256; remarkable specimens of, 239; new, 94, 115, 116, 140; pillar, 241; standard or tree, 106; weeping, 169.
 Roses for Hedges, 101, 146.
 Royal Horticultural Society, Anniversary meeting of, 71; Chiswick Garden, 118; show at Oxford, 191.
 Rush, Flowering, 222.
SACCOLABIUM bigibbum, 46.
Sagittarias, eulture of, 77.
Salisburia adiantifolia, 23.
Salvia involucrata Deschampsiana, 7.
Scale, Apple-bark Mussel (woodcuts), 216.
Scale Inseet, new (woodcuts), 119.
Seaforthia Veitehii, 5.
Sedum spectabile, 127.
 Seeds, Watering of, 117.
Selenipedium, 18.
Sempervivum, culture of, 201.
Seneio argenteus, 261.
 Sequoia, growth of, as timber, 181.
 Sexes in plants, production of, 216.
 Shallots, growth of, from seed, 24.
 Shelter for gardens, 230.
 Shrubs for English Plantations (woodcut), 151; for seaside purposes, 47.
Smilaeina bifolia, use of, for bouquets, 264.
Solanum Pseudo-Capsicum eomcompactum, 94.
Stapelia hystrix, 8.
Stoeck, White Virginian, 240.
Stratiotes, culture of, 177.
 Strawberry, Everbearing Andine, 24; cropping old, 173.
 Strawberries, new, 37; promising seedling, 204.
Strawberry Crinoline, Paxton (woodcut), 143.
Struthiopteris orientalis, 6.
 Sublimed Sulphur, 48.
 Sulphur Distributor, 118.
 TAR Pavements, 263.
 Taxodium, growth of, as timber, 181.
 Tea Tree, Duke of Argyll's, 142.
Tetranthera Lhuysii, 7.
 Thermometer, Victoria Eleetrie (woodeut), 277.
Thrinax havanensis, 5.
Thuja gigantea (Lobbii) aureo-variegata, 6.
Thymus eitriodorus aureus, 261.
 Tile Edging, Conduit (woodcuts), 170.
 Timber trees, growth of, 180.
Todea intermedia, 6; *T. Wilkesiana* (woodeut), 163.
Toxicophœa speetabilis, 7.
 Trees and Shrubs for English Plantations (woodcut), 151; for seaside purposes, 47.
Tropæolum oehroleucum, 248.
 Tuberoce, the, 20; as grown in America, 137.
Tulip, John Henry (plate), 169.
 Tulips, Lightbody's, 264; Royal National Exhibition of, 147.
 VANDA Denisoniana, 46.
Vanilla, large plant of, 119; *V. Phalænopsis*, 46.
 Variation in plants, 226.
 Vegetables, new, 36.
Veitehia Johannis, 5.
 Veitch Memorial, 262.
 Ventilation of Hothouses, (woodcut), 227.
Verbenas, new, 212, 214, 238, 261; seleet, 95.
 Vines, pot, House for (woodeut), 138.
 Vine Borders, Aërated, 19.
 Vine Budding, 160.
 Vine Disease in France, 191; remedy for, 233.
 Vine Mildew, eheeking, 48.
 Vine pruning, 240.
 Vineries, Rendle's Portable (woodcuts), 281.
Viola cornuta, 116; *V. lutea major*, 141.
 Violet, Marie Louise, 95; water, 222.
Vitis chontalensis, 44; *V. javalensis*, 44.
 WALL, Beard's Glass, 168; (woodcuts), 183.
 Wall-tree Borders, planting, 135.
 Watering Seeds and Plants, 117.
 Water Plants, 35, 77, 176, 222.
 Water Soldier, 177.
Welfia regia, 5.
 Wellingtonia, growth of, as timber, 181.
Wigandia imperialis, 261.
 Wild Garden, the, rev., 258.
 Window Plants, 194.
 YELLOW-LEAVED Bedding Plants, 248.
 Yew tree, perfectly harmless, Fruit of, 24.
Yucea argospatha, 6.
 ZINC roofing, obviation of oxidation of, 240.
Zygotetalum Wallisii, 46.

